

	A	B	C	D	E	F
1						
2	Indicator 1C (Outcome Level)	Total # Labs Targeted for viral family screening (pull from Indicator 1.2a)	Is this country improving quality assurance and safety procedures? *Based on labs ability to 1) test for 1 viral family, 2) test for all 5 PREDICT prioritized viral families, 3) test for additional viral families	Notes	Calculation for Reporting	Numerator: Total # of ETD supported labs that improved QA and safety procedures in place in order to perform testing since the last reporting period. Denominator: Total # of ETD supported labs
3						
4	AFRICA					
5	Cameroon	2	1 (50%)	Now testing for 6 viral families		
6	Cote d'Ivoire	2	1 (50%)	5 viral families		
7	DRC	1	1 (100%)	Now testing for 10 viral families		
8	Ethiopia	2	1 (50%)	5 viral families		
9	Ghana	2	1 (50%)	4 viral families		
10	Guinea	1	0			
11	Kenya	2	1 (30%)	4 viral families		
12	Liberia	1	0			
13	RoC	1	0			
14	Rwanda	2	1 (50%)	4 viral families		
15	Senegal	2	0			
16	Sierra Leone	1	1 (100%)	1 viral family		
17	Tanzania	2	2 (100%)	5 viral families		
18	Uganda	1	1 (100%)	1 viral family		
19	ASIA					
20	Bangladesh	2	1 (50%)	5 viral families		
21	Cambodia	3	1 (30%)	Now testing for 9 viral families		
22	China	4	2 (50%)	Now testing for 6 viral families		
23	India	1	0			
24	Indonesia	3	2 (60%)	5 viral families		
25	Lao PDR	2	1 (50%)	5 viral families		
26	Malaysia	5	3 (60%)	Now testing for 8 viral families		
27	Mongolia	1	1 (100%)	1 viral family		
28	Myanmar	2	0			
29	Nepal	2	1 (50%)	5 viral families		
30	Thailand	2	2 (100%)	Now testing for 12 viral families		
31	Vietnam	5	3 (60%)	Now testing for 6 viral families		
32	MIDDLE EAST					
33	Egypt	1	1 (100%)	3 viral families		
34	Jordan	1	1 (100%)	4 viral families		
35						
36	*for the period 10/1/17-9/30/18 ONLY					

	A	B
1	New Indicator	
2	Indicator 1.1a	#, list of countries with concurrent sampling (indicate Y/N)
3	Indicate Country, Region or Global	
4	Bangladesh	
5	Cambodia	
6	Cameroon	
7	China	
8	Cote d'Ivoire	
9	Democratic Republic of Congo	
10	Egypt	
11	Ethiopia	
12	Ghana	
13	Guinea	
14	India	
15	Indonesia	
16	Jordan	
17	Kenya	
18	Lao PDR	
19	Liberia	
20	Malaysia	
21	Mongolia	
22	Myanmar	
23	Nepal	
24	Republic of Congo (RoC)	
25	Rwanda	
26	Senegal	
27	Sierra Leone	
28	Tanzania	
29	Thailand	
30	Uganda	
31	Viet Nam	
32		
33		
34		
35		
36		
37		
38		
39		
40		
41	*for the period 10/1/17-9/30/18 ONLY	

	A	B	C	D
	Indicator 1.1b	# viral pathway models or maps developed, refined, analyzed and/or described	# bacterial pathway models or maps developed, refined, analyzed and/or described**	# disease risk pathway models or maps developed, refined, analyzed and/or described**
1				
2	WEST AFRICA (Regional)			
3	Burkina Faso (ASL2050 only)	0		1
4	Cameroon	1		1
5	Cote d'Ivoire	1		1
6	Ghana	1		1
7	Guinea	1		1
8	Liberia	1		1
9	Nigeria (ASL2050 only)	0		1
10	Senegal	1		1
11	Sierra Leone	1		1
12	AST & CENTRAL AFRICA (Regional)			
13	DRC	1		1
14	Ethiopia	1		1
15	Kenya	2		1
16	RoC	1		1
17	Rwanda	1		1
18	Tanzania	1		1
19	Uganda	2		1
20	ASIA (Regional)			1
21	Bangladesh	1		1
22	Cambodia	1		1
23	China	1		1
24	India	1		1
25	Indonesia	1		1
26	Lao PDR	1		1
27	Malaysia	1		1
28	Mongolia	1		1
29	Myanmar	1		1
30	Nepal	1		1
31	Thailand	1		1
32	Vietnam	1		1
33	MIDDLE EAST (Regional)			
34	Egypt	1		1
35	Jordan	1		1
36	GLOBAL			
37				
38				
39				
40		2		3

	E
1	Provide a list and brief narrative description of each viral, bacterial or risk pathway model or map developed, refined, analyzed and/or described. If feasible, the maps or models should be attached.
2	
3	29. country-level relative EID risk map
4	1. country-level relative EID risk map, 31. country-level predicted zoonoses map
5	2. country-level relative EID risk map, 32. country-level predicted zoonoses map
6	3. country-level relative EID risk map, 33. country-level predicted zoonoses map
7	4. country-level map for EID risk, 34. country-level predicted zoonoses map
8	5. country-level relative EID risk map, 35. country-level predicted zoonoses map
9	30. country-level relative EID risk map
10	6. country-level relative EID risk map, 36. country-level predicted zoonoses map
11	7. country-level relative EID risk map, 37. country-level predicted zoonoses map
12	
13	8. country-level relative EID risk map, 38. country-level predicted zoonoses map
14	9. country-level relative EID risk map, 39. country-level predicted zoonoses map
15	10. country-level relative EID risk map, 40. country-level predicted zoonoses map, 59. Province-level avian influenza epidemic risk map
16	11. country-level relative EID risk map, 41. country-level predicted zoonoses map
17	12. country-level relative EID risk map, 42. country-level predicted zoonoses map
18	13. country-level relative EID risk map, 43. country-level predicted zoonoses map
19	14. country-level relative EID risk map, 44. country-level predicted zoonoses map, 60. province-level avian influenza risk map
20	61. Regional overlap of <i>Rhinopholus</i> spp. and pigs
21	15. country-level relative EID risk map, 45. country-level predicted zoonoses map
22	16. country-level relative EID risk map, 46. country-level predicted zoonoses map
23	17. country-level relative EID risk map, 47. country-level predicted zoonoses map
24	18. country-level relative EID risk map, 48. country-level predicted zoonoses map
25	19. country-level relative EID risk map, 49. country-level predicted zoonoses map
26	20. country-level relative EID risk map, 50. country-level predicted zoonoses map
27	21. country-level relative EID risk map, 51. country-level predicted zoonoses map
28	22. country-level relative EID risk map, 52. country-level predicted zoonoses map
29	23. country-level relative EID risk map, 53. country-level predicted zoonoses map
30	24. country-level relative EID risk map, 54. country-level predicted zoonoses map
31	25. country-level relative EID risk map, 55. country-level predicted zoonoses map
32	26. country-level relative EID risk map, 56. country-level predicted zoonoses map
33	
34	27. country-level relative EID risk map, 57. country-level predicted zoonoses map
35	28. country-level relative EID risk map, 58. country-level predicted zoonoses map
36	62. Viral species accumulation per viral family
37	63. Global distribution of wild mammals in PREDICT countries
38	64. Aggregated global mammalian livestock density
39	65. Global map of land-use
40	66. Refined seasonal model of viral shedding in bats

	A	B	C	D
41				
42	TOTAL	32		34
43				
44	*for the period 10/1/17-9/30/18 ONLY			

	A	B	C
1		*Cumulative - indicate year	
2	Indicator 1.1	Describe each risk factor/interface characterized that is associated with spillover, amplification, and/or spread (include information on risk factor/interface type and contribution/association with spillover, amplification and/or spread, also indicate animal/human vs animal/animal and country)	List Publication or reference if possible
3	State Country or G	Risk factor/interface description	
4	China	Bats are host to a diverse array of viruses shed in feces (host risk factor linked to potential for animal to human spillover; based on PREDICT data) (Y1)	
5	China	Rodents are host to a diverse array of viruses shed in feces (host risk factor linked to potential for animal to human spillover; based on PREDICT data) (Y1)	
6	China	Contact with poultry is a risk factor for infection with Influenza A/H7N9 among children in 2013-2014 (host factor and high-risk interface linked to animal to human spillover, based on PREDICT data) (Y1)	
7	China	Contact with poultry feces, chopping/butchering boards, and cage surfaces is a risk factor for infection with Influenza A/H7N9 (host/environmental risk factor and high-risk interface linked to animal to human spillover, based on PREDICT data) (Y1)	
8	China	Small mammals are host to high prevalence of viruses in the hantavirus family (host risk factor linked to potential for animal to human spillover; based on PREDICT data) (Y2)	X-Y Ge, W-H Yang, H. Pan, J-H Zhou, X. Han, G-J Zhu, J.S. Desmond, P. Daszak, Z-L Shi, Y-Z Zhang. 2016. Fugong virus, a novel hantavirus harbored by the small oriental vole (<i>Eothenomys eleusis</i>) in China. · Virology Journal · 13:27. doi: 10.1186/s12985-016-0483-9
9	Bangladesh	Co-infections influence viral occurrence (agent risk factor linked to potential for spillover; based on PREDICT data) (Y1)	
10	Bangladesh	Primates in an urban setting are host to a diverse array of viruses that are shed in feces (host risk factor and high-risk interface linked to potential for animal to human spillover; based on PREDICT data) (Y1)	
11	DRC	Human contact with primates in intensive conservation management situations facilitates disease transmissiion between humans and primates (host/environmental risk factors and high-risk interface linked to anthroozoonotic spillover, based on PREDICT data) (Y1)	
12	Malaysia	Human contact with primates in intensive management to mitigate human-macaque conflict is a potential risk factor for spillover of macacine herpesvirus 1 (B virus) (host/environmental risk factors and high-risk interfaces linked to animal to human spillover, based on PREDICT data) (Y1)	Lee, M.H., Rostal, M.K., Hughes, T., Sitam, F., Lee, C.Y., Japning, J., Harden, M.E., Griffiths, A., Basir, M., Wolfe, N.D. and Epstein, J.H., 2015. Macacine Herpesvirus 1 in Long-Tailed Macaques, Malaysia, 2009–2011. Emerging infectious diseases, 21(7), p.1107.
13	RoC	Butchering fruit bats is a significant risk factors for zoonotic spillover of henipavirus (host/environmental risk factors and high-risk interfaces linked to animal to human spillover, based on PREDICT data) (Y1)	Weiss, S., Nowak, K., Fahr, J., Wibbelt, G., Mombouli, J.V., Parra, H.J., Wolfe, N.D., Schneider, B.S. and Leendertz, F., 2012. Henipavirus-related sequences in fruit bat bushmeat,.
14	Cameroon	Butchering fruit bats and living in areas undergoing deforestation are significant risk factors for zoonotic spillover of henipavirus (host/environmental risk factors and high-risk interfaces linked to animal to human spillover, based on PREDICT data) (Y1)	Pernet O, Schneider BS, Beaty SM, LeBreton M, Yun TE, Park A, Zachariah TT, Bowden TA, Hitchens P, Ramirez CM, Daszak P. Evidence for henipavirus spillover into human populations in Africa. Nature communications. 2014 Nov 18;5.

	D	E	F
1			
2	Risk Factor or Risk Inter	Classify as: New characteriztaion/in progress/complete	
3		complete	
4	Risk Factor	complete	
5	Risk Factor	complete	
6	both	complete	
7	both	complete	
8	Risk Factor	complete	
9	Risk Factor	complete	
10	both	complete	
11	both	complete	
12	both	complete	
13	both	complete	
14	both	complete	

	A	B	C
15	RoC	Primates in intensive management are host to a diverse array of viruses that are shed in feces (host risk factor linked to potential for spillover; based on PREDICT data) (Y1)	
16	Philippines (Place)	A range of bat species are host to Reston ebolavirus and pose a risk for spillover to humans (host risk factor linked to potential for animal to human spillover; based on PREDICT data) (Y1)	Jayme, S.I., Field, H.E., de Jong, C., Olival, K.J., Marsh, G., Tagtag, A.M., Hughes, T., Bucad, A.C., Barr, J., Azul, R.R. and Retes, L.M., 2015. Molecular evidence of Ebola Reston virus infection in Philippine bats. <i>Virology journal</i> , 12(1), p.107.
17	Thailand	A range of bat species are host to a diverse array of fecally shed coronaviruses that pose a risk for spillover to humans (host risk factor linked to potential for animal to human spillover; based on PREDICT data) (Y1)	Wacharapluesadee, S., Duengkae, P., Rodpan, A., Kaewpom, T., Maneeorn, P., Kanchanasaka, B., Yingsakmongkon, S., Sittidetboripat, N., Chareesaen, C., Khlangsap, N. and Pidthong, A., 2015. Diversity of coronavirus in bats from Eastern Thailand. <i>Virology journal</i> , 12(1), p.57.
18	Global	RNA viruses are more likely to spillover from animals to humans than DNA virus (agent risk factor linked to animal to human spillover, based on in-depth literature review of all known zoonotic viruses) (Y1)	Johnson, C.K., Hitchens, P.L., Evans, T.S., Goldstein, T., Thomas, K., Clements, A., Joly, D.O., Wolfe, N.D., Daszak, P., Karesh, W.B. and Mazet, J.K., 2015. Spillover and pandemic properties of zoonotic viruses with high host plasticity. <i>Scientific reports</i> , 5, p.14830.
19	Global	Viruses with high host plasticity (i.e. viruses able to infect hosts from a large number of taxonomic orders) are more likely to be transmissible human-to-human (agent risk factor linked to potential for amplification and spread, based on in-depth literature review of all known zoonotic viruses) (Y1)	Johnson, C.K., Hitchens, P.L., Evans, T.S., Goldstein, T., Thomas, K., Clements, A., Joly, D.O., Wolfe, N.D., Daszak, P., Karesh, W.B. and Mazet, J.K., 2015. Spillover and pandemic properties of zoonotic viruses with high host plasticity. <i>Scientific reports</i> , 5, p.14830.
20	Global	Wild animals are the documented source of 91% of zoonotic viruses recognized to date (host risk factor linked to spillover, based on in-depth literature review of all known zoonotic viruses) (Y1)	Johnson, C.K., Hitchens, P.L., Evans, T.S., Goldstein, T., Thomas, K., Clements, A., Joly, D.O., Wolfe, N.D., Daszak, P., Karesh, W.B. and Mazet, J.K., 2015. Spillover and pandemic properties of zoonotic viruses with high host plasticity. <i>Scientific reports</i> , 5, p.14830.
21	Global	Zoonotic viruses reported in domesticated species had higher host plasticity (agent/host risk factors linked to animal to animal amplification and spread, based on in-depth literature review of all known zoonotic viruses) (Y1)	Johnson, C.K., Hitchens, P.L., Evans, T.S., Goldstein, T., Thomas, K., Clements, A., Joly, D.O., Wolfe, N.D., Daszak, P., Karesh, W.B. and Mazet, J.K., 2015. Spillover and pandemic properties of zoonotic viruses with high host plasticity. <i>Scientific reports</i> , 5, p.14830.
22	Global	Vector-borne zoonotic viruses found in wildlife had higher host plasticity (agent risk factor linked to animal to animal and animal to human spillover and spread, based on in-depth literature review of all known zoonotic viruses) (Y1)	Johnson, C.K., Hitchens, P.L., Evans, T.S., Goldstein, T., Thomas, K., Clements, A., Joly, D.O., Wolfe, N.D., Daszak, P., Karesh, W.B. and Mazet, J.K., 2015. Spillover and pandemic properties of zoonotic viruses with high host plasticity. <i>Scientific reports</i> , 5, p.14830.

	D	E	F
15	Risk Factor	complete	
16	<i>Risk Factor</i>	complete	
17	Risk Factor	complete	
18	Risk Factor	complete	
19	Risk Factor	complete	
20	Risk Factor	complete	
21	Risk Factor	complete	
22	Risk Factor	complete	

	A	B	C
23	Global	Human direct contact with wild animals kept as pets, maintained in sanctuaries or zoos, and sold at markets, had higher host plasticity (host/environmental risk factors and high-risk interface linked to animal to human spillover and spread, based on in-depth literature review of all known zoonotic viruses) (Y1)	Johnson, C.K., Hitchens, P.L., Evans, T.S., Goldstein, T., Thomas, K., Clements, A., Joly, D.O., Wolfe, N.D., Daszak, P., Karesh, W.B. and Mazet, J.K., 2015. Spillover and pandemic properties of zoonotic viruses with high host plasticity. Scientific reports, 5, p.14830.
24	Global	Human direct contact with wild animals in and around human dwellings and in agricultural fields (mainly rodent hosts as reported to date) has facilitated spillover of zoonotic viruses (host/environmental risk factors and high-risk interface linked to animal to human spillover and spread, based on in-depth literature review of all known zoonotic viruses) (Y1)	Johnson, C.K., Hitchens, P.L., Evans, T.S., Goldstein, T., Thomas, K., Clements, A., Joly, D.O., Wolfe, N.D., Daszak, P., Karesh, W.B. and Mazet, J.K., 2015. Spillover and pandemic properties of zoonotic viruses with high host plasticity. Scientific reports, 5, p.14830.
25	Global	Human direct contact with wildlife by hunting and consumption facilitates spillover of viruses with human-to-human transmissibility (agent/environmental risk factors and high-risk interface linked to animal to human spillover and spread, based on in-depth literature review of all known zoonotic viruses) (Y1)	Johnson, C.K., Hitchens, P.L., Evans, T.S., Goldstein, T., Thomas, K., Clements, A., Joly, D.O., Wolfe, N.D., Daszak, P., Karesh, W.B. and Mazet, J.K., 2015. Spillover and pandemic properties of zoonotic viruses with high host plasticity. Scientific reports, 5, p.14830.
26	Global	Zoonotic viruses in the arenaviridae and filoviridae families are more likely to be human-to-human transmissible (agent/environmental risk factors linked to animal to human spillover and spread, based on in-depth literature review of all known zoonotic viruses) (Y1)	Johnson, C.K., Hitchens, P.L., Evans, T.S., Goldstein, T., Thomas, K., Clements, A., Joly, D.O., Wolfe, N.D., Daszak, P., Karesh, W.B. and Mazet, J.K., 2015. Spillover and pandemic properties of zoonotic viruses with high host plasticity. Scientific reports, 5, p.14830.
27	Global	First emergence of viral diseases was most often reported as vector-borne transmission, followed by airborne transmission and then direct contact (agent risk factor linked to potential spillover or spread, based on in-depth literature review of past emerging disease events) (Y1)	
28	Global	First emergence of zoonotic diseases were most commonly associated with land use change, agricultural industry change, and international travel/commerce (environmental risk factor linked to potential animal to human spillover or spread, based on in-depth literature review of past emerging disease events) (Y1)	
29	Rwanda AND Uganda (Placed in both countries)	Primates in intensive management are host to viruses that are shed in saliva (host risk factor linked to potential for animal to human spillover; based on PREDICT data) (Y2)	T. Smiley Evans, K. Gilardi, P. Barry, B. Ssebide, J. Kinani, F. Nizeyimana, J. Noheri, D. Byarugaba, A. Mudakikwa, M. Cranfield, J.A.K. Mazet, C.K. Johnson. 2016 Detection of viruses using discarded plants from wild mountain gorillas and golden monkeys. American Journal of Primatology, doi: 10.1002/ajp.22576.
30	Global	Human direct contact with high volumes of wildlife from high-risk taxa by hunting and consumption and poor biosafety increases the potential for zoonotic pathogen presence and transmission (agent/environmental risk factors linked to animal to human spillover and spread, based on PREDICT data) (Y2)	Z.F. Grootorenx, S.H. Olson, S. Singhalath, S. Silihamavong, A.E. Fine, W. Weisman, B. Douangngeun, W. Theppangna, L. Keatts, M. Gilbert, W.B. Karesh, T. Hansel, S. Zimicki, K. O'Rourke, D.O. Joly, J.A.K. Mazet. 2016. Wildlife trade and human health in Lao PDR: An assessment of the zoonotic disease risk in markets. PLOS One. doi: 10.1371/journal.pone.0150666

	D	E	F
23	both	complete	
24	both	complete	
25	both	complete	
26	Risk Factor	complete	
27	Risk Factor	complete	
28	Risk Factor	complete	
29	Risk Factor	complete	
30	both	complete	

	A	B	C
31	Global	Bats are host to a diversity of viruses in the paramyxo-, adeno-, herpes-, astro-, and coronavirus families (host/agent risk factors linked to potential animal to animal or animal to human spillover, based on in-depth literature review of all known zoonotic viruses) (Y2)	C.C.W. Young, K.J. Olival. 2016. Optimizing Viral Discovery in Bats. PLOS One 11:2. doi: 10.1371/journal.pone.0149237
32	Global	Drivers of viral richness (host diversity and climactic variability) and transmission opportunity (human population density, bushmeat hunting, and livestock production) are associated with virus sharing between humans and bats (host/virus risk factor linked to animal to human spillover and spread; based on in-depth literature review of all known zoonotic bat viruses) (Y2)	L. Brierley, M.J. Vonhof, K.J. Olival, P. Daszak, K.E. Jones. 2016. Quantifying global drivers of zoonotic bat viruses: A process-based perspective. The American Naturalist, 187 (2). doi: 10.1086/684391
33	Lao PDR, Cambodia	Bats are host to astroviruses shed in feces. Astroviruses are distributed widely and some have been identified as a cause of gastroenteritis in humans and other mammals. Wildlife species living close to human habitats could represent a risk for transmission of astroviruses to humans and domestic animals (agent/host risk factor linked to potential for spillover; based on PREDICT data) (Y3)	A. Lacroix, V. Duong, V. Hul, S. San, H. Davun, K. Omaliss, S. Chea, A. Hassanin, W. Theppangna, S. Silihamavong, K. Khammavong, S. Singhalath, A. Afelt, Z. Grotorex, A.E. Fine, T. Goldstein, S. Olson, D.O. Joly, L. Keatts, P. Dussart, R. Frutos, P. Buchy. 2017. Diversity of bat astroviruses in Lao PDR and Cambodia. Infection, Genetics and Evolution, 47: 41-50. doi: 10.1016/j.meegid.2016.11.013
34	Lao PDR, Cambodia	Bats are host to a diverse array of coronaviruses (coronaviruses of animal origin were responsible for the Severe Acute Respiratory Syndrome [SARS] outbreak in 2003–2004 and the current epidemics of Middle Eastern Respiratory Syndrome [MERS] in the Arabian Peninsula and Korea). Findings are of importance for public health as Lao PDR and Cambodia have a high biodiversity of bats, often at high-risk interfaces in close proximity to people (agent/host risk factor linked to potential for animal to human spillover; based on PREDICT data) (Y3)	Lacroix, A., Duong, V., Hul, V., San, S., Davun, H., Omaliss, K., Chea, S., Hassanin, A., Theppangna, W., Silihamavong, S. and Khammavong, K. 2017. Genetic diversity of coronaviruses in bats in Lao PDR and Cambodia. Infection, Genetics and Evolution, 48, pp.10-18.
35	China	Bats are hosts to novel filoviruses in China. Findings suggest that these viruses have been circulating in the 2 bat species and that densely populated bat caves provide opportunity for cross-species infection with different viruses. Considering their feeding habitats, fruit bats are often in close contact with domestic animals and human populations (host risk factor linked to potential for animal to animal or animal to human spillover; based on PREDICT data) (Y3)	Yang, X.L., Zhang, Y.Z., Jiang, R.D., Guo, H., Zhang, W., Li, B., Wang, N., Wang, L., Waruhiu, C., Zhou, J.H. and Li, S.Y., 2017. Genetically Diverse Filoviruses in Rousettus and Eonycteris spp. Bats, China, 2009 and 2015. Emerging Infectious Diseases, 23(3), p.482.
36	Global	The expanding international wildlife trade combined with a lack of surveillance for key animal diseases in most countries represents a potential pathway for transboundary disease movement (host/agent risk factors linked to potential animal to animal or animal to human spillover, based on in-depth literature review of reports of OIE-listed terrestrial animal diseases in wild animals) (Y3)	Smith, K.M., Machalaba, C.M., Jones, H., Cáceres, P., Popovic, M., Olival, K.J., Ben Jebara, K. and Karesh, W.B., 2017. Wildlife hosts for OIE-Listed diseases: considerations regarding global wildlife trade and host–pathogen relationships. Veterinary Medicine and Science.
37	Global	The number of declared wildlife shipments into the USA has doubled since 2000, illustrating continually increasing demand, which reinforces the need to scale up capacity for border inspections, risk management protocols and disease surveillance (host/agent risk factors linked to potential animal to animal or animal to human spillover, based on comprehensive data US Fish and Wildlife Services database) (Y3)	Smith, K.M., Zambrana-Torrel, C., White, A., Asmussen, M., Machalaba, C., Kennedy, S., Lopez, K., Wolf, T.M., Daszak, P., Travis, D.A. and Karesh, W.B., 2017. Summarizing US Wildlife Trade with an Eye Toward Assessing the Risk of Infectious Disease Introduction. EcoHealth, 14(1), pp.29-39.

	D	E	F
31	Risk Factor	complete	
32	Risk Factor	complete	
33	Risk factor	complete	
34	Risk factor	complete	
35	Risk factor	complete	
36	Risk factor	complete	
37	Risk factor	complete	

	A	B	C
38	Global	Bats are host to a diversity of viruses in the coronavirus (CoVs) family, and global diversity and distribution of CoVs in bats is non-random and is driven by variation in the biogeography of bats (host/agent risk factors linked to potential animal to animal or animal to human spillover; based on PREDICT data) (Y3)	Anthony, S.J., Johnson, C.K., Greig, D.J., Kramer, S., Wells, H., Hicks, A., Joly, D., Wolfe, N., Daszak, P., Karesh, W., Lipkin, W.I., Morse, S.S., PREDICT Consortium, Mazet, J.A.K., Goldstein, T., 2017. Global patterns in coronavirus diversity.
39	Bangladesh	Nipah virus was found in Indian flying foxes outside of the area currently recognized to be experiencing recurring outbreaks of Nipah virus in humans, suggesting spillover is possible wherever humans interact with Indian flying foxes. Human activities such as date palm sap harvesting, concurrent with viral circulation in local bat populations, are major drivers of human outbreaks in Bangladesh (host/agent risk factor and high-risk interface linked to potential animal to animal or animal to human spillover; based on PREDICT data) (Y3)	Epstein, J.H., Anthony, S.J., Islam, A., Kilpatrick, A.M., Khan, S.A., Ross, N., Smith, I., Barr, J., Zambrana-Torrel, C., Tao, Y. and Quan, P.L., 2016. Nipah virus ecology and infection dynamics in its bat reservoir, <i>Pteropus medius</i> , in Bangladesh. <i>International Journal of Infectious Diseases</i> , 53, pp.20-21.
40	Egypt	High MERS-CoV seroprevalence and the presence of active viral infection circulating in imported and resident camels are indications that MERS-CoV may have become ubiquitous in Egypt. Transport stress and close vicinity of imported camels during transport may precipitate disease dissemination, particularly in animals with latent infection and carrier animals (host/agent risk factor and high-risk interface linked to potential animal to human spillover) (Y3)	Ali M, El-Shesheny R, Kandeil A, Shehata M, Elsokary B, Gomaa M, Hassan N, El Sayed A, El-Taweel A, Sobhy H, Oludayo FF. Cross-sectional surveillance of Middle East respiratory syndrome coronavirus (MERS-CoV) in dromedary camels and other mammals in Egypt, August 2015 to January 2016. <i>Eurosurveillance</i> . 2017 Mar 16;22(11).
41	Uganda/Global	MERS-related CoVs are highly associated with bats and are geographically widespread (host risk factor linked to potential for animal to human spillover) (Y3)	Anthony SJ, Gilardi K, Menachery VD, Goldstein T, Ssebidde B, Mbabazi R, Navarrete-Macias I, Liang E, Wells H, Hicks A, Petrosov A. Further Evidence for Bats as the Evolutionary Source of Middle East Respiratory Syndrome Coronavirus. <i>mBio</i> . 2017 May 3;8(2):e00373-17.
42	Global	Risk of emerging infectious zoonotic disease is elevated in forested tropical regions experiencing land-use changes, especially where wildlife biodiversity (mammal species richness) is high (host/environmental risk factor and high-risk interface linked to animal to human spillover, based on global data) (Y3)	Allen, T., Murray, K. A., Zambrana-Torrel, C., Morse, S. S., Rondinini, C., Di Marco, M., ... & Daszak, P. (2017). Global hotspots and correlates of emerging zoonotic diseases. <i>Nature Communications</i> , 8(1), 1124.
43	Global	Cave-roosting bat species exhibit a greater likelihood of viral sharing within caves (host risk factor linked to potential for animal to animal or animal to human spillover, based on global data and PREDICT 1 data) (Y3)	Willoughby, A. R., K. L. Phelps, PREDICT Consortium & K. J. Olival. A Comparative Analysis of Viral Richness and Viral Sharing in Cave-Roosting Bats. (2017). <i>Diversity</i> , 9, 35;
44	Global	The proportion of known zoonotic viruses per species is predicted by phylogenetic relatedness to humans, host taxonomy (bats harbor a significantly higher proportion of zoonotic viruses than all other mammalian orders), and human population within a species range --which may reflect human-wildlife contact (host risk interface linked to potential for animal to human spillover, based on global data) (Y3)	Olival, K. J., Hosseini, P. R., Zambrana-Torrel, C., Ross, N., Bogich, T. L., & Daszak, P. (2017). Host and viral traits predict zoonotic spillover from mammals. <i>Nature</i> , 546(7660), 646-650.

	D	E	F
38	Risk factor	complete	
39	both	complete	
40	both	complete	
41	Risk Factor	complete	
42	both	complete	
43	risk factor	complete	
44	risk interface	complete	

	A	B	C
45	China	Swine acute diarrhoea syndrome coronavirus (SADS-CoV), responsible for a large-scale outbreak of fatal disease in pigs in China, was identified in horseshoe bats (<i>Rhinolophus</i> spp.) in Guangdong province during 2013–2016. Horseshoe bats (<i>Rhinolophus</i> spp.) are known reservoirs of SARS- and HKU-2 related CoVs. Viral sharing between bats and swine are host/agent risk factors linked to animal to animal spillover with potential for animal to human spillover. Geographical, temporal, and ecological settings similar to SARS outbreaks at high risk interfaces are noted (Y4).	Zhou, Peng, et al. "Fatal swine acute diarrhoea syndrome caused by an HKU2-related coronavirus of bat origin." <i>Nature</i> (2018): 1.
46	Global	Human modification of the environment serves as an underlying driver in emerging infectious disease risk. Environmental change warrants consideration in surveillance and outbreak investigations to identify the origin of the disease and contribute to the development of effective actions to prevent, prepare for or reduce the risk of future events (risk interface linked to potential for animal to human spillover, based on literature review) (Y4).	Machalaba C, Karesh WB. Emerging infectious disease risk: shared drivers with environmental change. <i>Revue scientifique et technique-office international des epizooties</i> . 2017 Aug 1;36(2):435-44.
47	Global	Dromedary camels are bred domestically and imported into Bangladesh. In 2015, of 55 camels tested for Middle East respiratory syndrome coronavirus in Dhaka, 17 (31%) were seropositive, including 1 bred locally (host/agent risk factors linked to potential animal to animal or animal to human spillover; based on PREDICT data). Infected camels in urban markets could have public health implications and warrants further investigation (host risk interface linked to potential for animal to human spillover, based on global data) (Y4).	Islam A, Epstein JH, Rostal MK, Islam S, Rahman M, Hossain M, et al. Middle East Respiratory Syndrome Coronavirus Antibodies in Dromedary Camels, Bangladesh, 2015. <i>Emerg Infect Dis</i> . 2018;24(5):926-928.
48	DRC	Bocaparvoviruses are members of the family Parvoviridae and human bocaviruses have been associated with respiratory and gastrointestinal disease. Bocavirus DNA was found in blood and tissues samples in 6 out of 620 non-human primates in the Democratic Republic of the Congo. All isolates showed very high identity (>97%) with human bocaviruses 2 or 3, suggesting cross-species transmission of bocaviruses between humans and NHPs (host/agent risk factors linked to potential animal to human spillover) (Y4).	Kumakamba C, Lukusa IN, Kingebeni PM, N'Kawa F, Losoma JA, Mulembakani PM, Makuwa M, Tamfum JJ, Belais R, Gillis A, Harris S. DNA indicative of human bocaviruses detected in non-human primates in the Democratic Republic of the Congo. <i>Journal of General Virology</i> . 2018 Mar 27.
49	China	Of 218 residents who live in close proximity to caves inhabited by large numbers of <i>Rhinolophid</i> bats (a major reservoir of SARSr-CoVs in China), 2.7% people showed seropositivity to SARS-like CoVs (host/environmental risk factors and high-risk interface linked to spillover, based on PREDICT data) (Y4).	Wang N, Li SY, Yang XL, Huang HM, Zhang YJ, Guo H, Luo CM, Miller M, Zhu G, Chmura AA, Hagan E. Serological evidence of bat SARS-related coronavirus infection in humans, China. <i>Virologica Sinica</i> . 2018 Feb 1;33(1):104-7.
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	D	E	F
45	both	complete	
46	risk interface	complete	
47	both	complete	
48	risk factor	complete	
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	A	B
1	Indicator 1.1d	Provide a list and brief description of each intervention point that has been prioritized to inform the development of risk mitigation approaches (information should describe the intervention point's characteristics, an explanation on how it was identified and why it was prioritized; include country information)
2	Indicate Country or Global	
3	Bangladesh	
4	Cambodia	
5	Cameroon	
6	China	
7	Cote d'Ivoire	
8	Democratic Republic of Congo	
9	Egypt	
10	Ethiopia	
11	Ghana	
12	Guinea	
13	India	
14	Indonesia	
15	Jordan	
16	Kenya	
17	Lao PDR	
18	Liberia	
19	Malaysia	
20	Mongolia	
21	Myanmar	
22	Nepal	
23	Republic of Congo (RoC)	
24	Rwanda	
25	Senegal	
26	Sierra Leone	
27	Tanzania	
28	Thailand	
29	Uganda	
30	Viet Nam	
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36	*for the period 10/1/17-9/30/18 ONLY	

	A	B	C	D	E	F	G
1	Indicator 1.2a	YEAR 4 DATA (10/01/17 - 03/31/18)					
2		Total # Labs Targeted for PREDICT viral family testing	# of labs in the country obtaining training or preparing to test for the 4 priority viral family protocols	# of labs in the country with the ability to perform testing for the 4 priority viral family PREDICT protocols	Proportion of labs that can do viral family testing	# of tests performed (# of tests performed by lab, for each virus, viral family, prioritized pathogen and/or AMR/antimicrobial quality test	Notes
3	AFRICA						
4	Cameroon	2	1	1	50%	Total Number tests: 10355 Tests by Viral family: Corona - 3686 Paramyxo - 1688 Filo - 1660 Influenza - 3315 Flavi - 3 Other - 3	
5	Cote d'Ivoire	2	1	1	50%	Total Number tests: 0	NOTE: Previous testing done with previous lead, in- country training/testing has begun again
6	DRC	1	0	1	100%	Total Number tests: 5220 Tests by Viral family: Corona - 1560 Paramyxo - 753 Filo - 818 Flavi - 508 Influenza - 1565 Arena - 2 Rhabdo - 2 Orthobunya - 12	
7	Ethiopia	2	1	1	50%	Total Number tests: 370 Tests by Viral family: Corona - 74 Filo - 74 Flavi - 74 Influenza - 148	
8	Ghana	2	1	1	50%	Total Number tests: 360 Tests by Viral family: Corona - 120 Filo - 60 Paramyxo - 60 Influenza - 120	

	A	B	C	D	E	F	G
9	Guinea	1	1	0	0%	Total Number tests: 891 Tests by Viral family: Filo - 358 Ebola - 358 Other Ebola - 175	NOTE: Current results from testing performed at UCD in USA; In-country lab is training to perform testing for 1 viral family
10	Kenya	2	1	1	33%	Total Number tests: 304 Tests by Viral family: Corona - 76 Filo - 76 Paramyxo - 76 Influenza - 76	
11	Liberia	1	1	0	0%	Total Number tests: 1982 Tests by Viral family: Filo - 991 Ebola - 991	NOTE: Testing done at CII in USA
12	RoC	1	0	0	0%	Total Number tests: 1 Tests by Viral family: Corona - 1	NOTE: Previous testing done at INRB in DRC, in-country training/testing has not begun
13	Rwanda	2	1	1	50%	Total Number tests: 498 Tests by Viral family: Corona - 166 Paramyxo - 83 Filo - 83 Influenza - 166	Lab is not testing for Flaviviruses
14	Senegal	2	2	0	0%	N/A	
15	Sierra Leone	1	1	0	0%	Total Number tests: 7500 Tests by Viral family: Filo - 3000 Ebola - 3000 Other Ebola - 1500	NOTE: Current results from UCD in USA; In-country lab is performing testing for 1 viral family
16	Tanzania	2	0	2	100%	Total Number tests: 3073 Tests by Viral family: Corona - 878 Paramyxo - 439 Filo - 439 Flavi - 439 Influenza - 878	
17	Uganda	1	1	0	0%	Total Number tests: 127 Tests by Viral family: Flavi - 127	1 viral family
18	ASIA						

	A	B	C	D	E	F	G
19	Bangladesh	2	1	1	50%	Total Number tests: 18908 Tests by Viral family: Corona - 2779 Paramyxo - 2483 Filo - 2575 Flavi - 2483 Influenza - 2859 Other - 5734	
20	Cambodia	3	2	1	33%	Total Number tests: 8939 Tests by Viral family: Corona - 1364 Paramyxo - 1199 Filo - 784 Flavi - 1199 Influenza - 470 Alpha - 1199 Orthobunya - 946 Rhabdo - 1001	
21	China	4	2	2	50%	Total Number tests: 3005 Tests by Viral family: Corona - 601 Paramyxo - 601 Filo - 601 Flavi - 601 Influenza - 601	
22	India	1	1	0	0%	N/A	
23	Indonesia	3	1	2	67%	Total Number tests: 7708 Tests by Viral family: Corona - 2008 Paramyxo - 1848 Filo - 879 Flavi - 1330 Influenza - 1643	Eijkman Lab is currently not testing for Flaviviruses
24	Lao PDR	2	1	1	50%	Total Number tests: 5205 Tests by Viral family: Corona - 1630 Paramyxo - 815 Filo - 815 Flavi - 565 Influenza - 1380	

	A	B	C	D	E	F	G
25	Malaysia	5	2	3	60%	Total Number tests: 11759 Tests by Viral family: Corona - 3349 Paramyxo - 1711 Filo - 1711 Flavi - 1546 Influenza - 3436 Arena - 2 Hanta - 4	
26	Mongolia	1	1	0	0%	Total Number tests: 800 Tests by Viral family: Influenza - 800	Plan is only to perform influenza and the lab is doing so
27	Myanmar	2	2	0	0%	Total Number tests: 3199 Tests by Viral family: Corona - 914 Paramyxo - 457 Filo - 457 Flavi - 457 Influenza - 914	NOTE: Testing done at UCD in USA, in-country testing is beginning
28	Nepal	2	1	1	50%	Total Number tests: 2954 Tests by Viral family: Corona - 844 Paramyxo - 422 Filo - 422 Flavi - 422 Influenza - 844	
29	Thailand	2	0	2	100%	Total Number tests: 12410 Tests by Viral family: Corona - 2357 Paramyxo - 2357 Filo - 2357 Flavi - 2357 Influenza - 2357 Hanta - 597 Other - 28	
30	Vietnam	5	2	3	60%	Total Number tests: 4081 Tests by Viral family: Corona - 1166 Paramyxo - 583 Filo - 583 Flavi - 583 Influenza - 1166	
31	MIDDLE EAST						

	A	B	C	D	E	F	G
32	Egypt	1	1	0	0%	Total Number tests: 3606 Tests by Viral family: Corona - 1202 Paramyxo - 1202 Filo - 1202	Lab is currently testing for 3 viral families
33	Jordan	1	0	1	100%	Total Number tests: 2010 Tests by Viral family: Corona - 804 Paramyxo - 402 Filo - 402 Influenza - 402	Lab is currently not testing for Flaviviruses
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35	TOTAL		29	26		115,265	
36	*for the period 10/1/17-9/30/18 ONLY						
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	A	B	C	D	E	F	G
1	INDICATOR CHANGE	Animal		Human			
2	Indicator 1.2e	# days from sample collection to PREDICT testing result (confirmation)	# days from PREDICT testing result (confirmation) to national-level report	# days from sample collection to PREDICT testing result (confirmation)	# days from PREDICT testing result (confirmation) to national-level report	# days from sample collection to non-PREDICT testing result (confirmation)	# of days from government request for PREDICT assistance to PREDICT activity (assistance)
3	AFRICA	ANIMAL OUTBREAKS	HUMAN OUTBREAKS				
4	Ghana						1
5	Liberia						2
6	Democratic Republic of the Congo						2
7	Democratic Republic of the Congo						3
8	ASIA						
9	Bangladesh						1

	H	I
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2	QUALITATIVE INDICATOR: List/Description of outbreak support (include country, disease, human or animal, month and year based on sample collection date, important dates, type of support provided, any after action reviews) - <i>qualitative context for numbers provided only</i>	<i>This indicator is Qualitative only so we do not report on cells B-G</i>
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4	In February 2018, one person in the Greater Accra region developed symptoms consistent with viral hemorrhagic fever, presented to the hospital and later died. The patient was confirmed by laboratory testing as Lassa fever virus infection. PREDICT assisted in field investigation for reservoir sampling, and captured and sampled from a total of 52 <i>Mastomys</i> sp. rodents and <i>Crocidura</i> sp. shrews, as well as testing for five priority viral families for PREDICT. The PREDICT field team engaged in staff refresher training and potential trip planning at the time of notification of the event, and prepared logistics and sampling plans over the next four days. The team departed to the investigation site the following day.	
5	In February 2018, 63 patients with mild to moderate diarrheal disease visited a local clinic in Margibi County. Epidemiological investigation suggested a point source event, and PREDICT provided logistical support to the Liberian Ministry of Health to transport outbreak investigators and supplies to the affected area. The PREDICT team provided logistical support to collaborators two days after they received notification and request for assistance for the event.	
6	In November 2017, one person in Bas-Uele province presented with symptoms consistent with viral hemorrhagic disease, and was isolated and recovered. Later, another patient presented with similar symptoms in Kinshasa and deceased. PREDICT provided assistance with testing of specimens from both patients after specific pathogen rule-out testing for ebolaviruses and Marburg virus. All five priority families for PREDICT, as well as arenaviruses and rhabdoviruses tested negative. The PREDICT team initiated laboratory testing on the same day that they received the specimens.	
7	In October to November 2017, an alert of cattle die-off was sent from the provincial Ministry of Agriculture, Fish and Livestock of Bas-Uele to the National Minister of Fishery and Livestock. More than 4000 cattle imported from outside of DRC died in Bas-Uele province with symptoms including diarrhea, weight-loss, swelling knees, chancre, and loss of hair on the tail. PREDICT provided testing of ten field-specimens for orthobunyaviruses in addition to the five priority virus families following PREDICT protocols, all of which were negative. Response to this event was coordinated and carried out by a multidisciplinary team including PREDICT, Ministry of Fishery and Livestock, FAO, and LABOVET.	
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9	In February 2018, two people in Bogra district presented with symptoms consistent with encephalitis and later died. Both had a history of drinking raw date palm sap. The PREDICT field investigation team was deployed to the outbreak site and collected 89 urine and 93 feces specimens from <i>Pteropus</i> bat roosts, half eaten palm fruit, as well as ecological information from the site. Specimens were tested for five priority viral families for PREDICT. The field team was deployed one day after receiving request from the government.	

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10	Bangladesh						1
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14	*for the period 10/1/17-9/30/18 ONLY						
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10	In November 2017, the PREDICT field team observed neurological symptoms, diarrhea and unusual mortality in crows (<i>Corvus splendens</i>) in Dhaka city during their routine field work. In January and February in 2017, PREDICT investigated a crow mortality event at the same site. After receiving a request for outbreak support by the Government of Bangladesh, the PREDICT wildlife field team and the Department of Livestock Services collected samples from crows from two sites and provided technical advice to the Institute of Epidemiology, Disease Control and Research. The crow specimens were tested for five priority viral families for PREDICT. Routine work by the PREDICT field team resulted in early detection of unusual events in wildlife, prompting quick and coordinated action. The field team was deployed one day after receiving request from the government.	
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	A	B
1	INDICATOR CHANGE	
2	Indicator 2B (Outcome Level)	Evidence of application of OH trainings and sensitization in the workforce (qualitative)
3	AFRICA	
4	Cameroon	
5	Cote d'Ivoire	<p>PREDICT/CIV outreach aims at raising awareness in public health staff, but also in villagers, chiefs, technicians, wildlife rangers and persons working at risky transmission interfaces during daily, routine activities. The first step to achieve a One Health approach is to motivate these persons to understand each other's view point and work together. The PREDICT team participates in meetings held by the Technical Secretariat of GHSA, the institution in Côte d'Ivoire in charge of the coordination of the One Health task force.</p> <p>In November 2017, in order to better understand how the One Health approach and response is implemented and how PREDICT can contribute, the PREDICT CIV Country Coordinator organized meetings with principal actors and visiting Global lead staff. The delegation met with county authorities responsible for organizing the response and other relevant actors in the field (ministries, agencies and directions such as the Ivoirian Office of Parks and Reserves, Ministry of Fauna and Game Resources, the Direction o Veterinarian's Services, FAO, and P&R).</p> <p>PREDICT/CIV collaborated with the Direction of Fauna and Game Resources, and the Direction of Veterinarian Services to help increase the capacity of the national surveillance system using a One Health approach. PREDICT is currently working with in-country USAID partners to define how to work together to promote the One Health approach. These meetings with USAID Partners take place quarterly; the last two meetings were held in December 2017 and March 2018. PREDICT/CIV also contributed expertise to the creation of the National Sanitary Security Plan.</p>
6	Democratic Republic of Congo	<p>Cross Discipline/Functional Efforts</p> <p>The PREDICT/DRC laboratory team, located at the Institut National de Recherche Biomédicale (INRB), has been leading practical training sessions for physicians, veterinarians and biologists enrolled in the Field Epidemiology Laboratory Training Program (FELTP) Masters program since 2016, providing integral molecular biology training for detection of zoonotic viral diseases. Since October 2017, PREDICT/DRC has provided training to 18 FELTP students, as well as 6 biologists from the Institute of Sciences and Medical Technologies of Kinshasa, and 4 physicians from the Department of Medical Biology at the University of Kinshasa. PREDICT protocols for sample collection and laboratory analysis, and mentorship provided by the PREDICT/DRC team, prepare FELTP graduates to be DRC's front line for outbreak investigations. This training provided by PREDICT/DRC strengthens DRC's capacity to respond to zoonotic diseases with a One Health approach, building the skills of those involved in initial field investigations, as well as developing professional capacity in the animal and human health sectors involved in laboratory analysis and response activities.</p>
7	Ethiopia	<p>Established OHSM</p> <p>PREDCT-2 together with other EPT-2 partners and beyond participated in the establishment of OHSM. Ministry of Health; Ministry of Livestock and Fisheries; Ministry of Forestry, Environment and Climate Change and Ministry of Culture and Tourism (where Ethiopian Wildlife Conservation Authority is part of it) are stakeholders. The MoH (represented by EPHI), and a partner on PREDICT work in Ethiopia) was elected chairman and MoLF is the secretary of the OHSM establishment.</p>

	A	B
8	Ghana	<p>PREDICT/Ghana contributed to the investigation around a case of Lassa Fever in Ghana in March, 2018. In collaboration with the Ghana Health Service, the PREDICT Ghana team personnel from the Wildlife Division, Ministry of Land and Natural Resources and Veterinary Services Directorate, Ministry of Food and Agriculture conducted the field investigations, safely capturing and sampling rodents around two locations where the deceased patient resided during the four week period leading up to his illness and conducting human questionnaires in the local community. The team assisted the Ghana Health Service and the School of Public Health, University of Ghana with community sensitization and education on Lassa Fever. In total, the team captured 52 rodents in total and submitted the samples to the laboratory for testing using Lassa Fever specific molecular assays. PREDICT provided the enhanced capacity for safe rodent capture and sampling as well as assessment of risk factors for exposure through application of the PREDICT human questionnaires. The government of Ghana views this effort as a One Health success story where personnel representing the three ministries worked collaboratively to investigate the circumstances of this case, including assessing rodent reservoirs of the virus around the residences of the deceased patient, and evaluating potential human practices and other risk factors that could put this community at greater risk of exposure. The team also worked closely with the Ghana Health Service and the School of Public Health to educate the community on Lassa Fever and strategies for reducing their risk. The One Health approach to this investigation served as the motivation for PREDICT Ghana team members to network with institutions in other countries in West Africa to explore collaborations on Lassa Fever research.</p>
9	Guinea	<p>Surveillance, Education, and Prevention Efforts</p> <p>From November 2016 to the present, PREDICT/Guinea has been engaging and educating community members about zoonotic diseases and the risks of viral spillover at the animal-human interface. The community engagement meetings are being used as channel for sensitizing. These community engagement meetings have increased the understanding of the importance of the animal-human interface, an essential key to preventing outbreaks of zoonotic disease. Consequently, representatives of the national stakeholders, who attended the community engagement meetings have reported to the Department of Public health the need of mass canine vaccination campaigns to control rabies in Guinea. A recent workshop (26-30 March 2018) to establish, "One Health approach to cost-effective rabies control in Guinea" put forth recommendations for veterinary surveillance of rabies and laboratory submission of reports of suspected animal cases to the department of Public Health for management of potential human exposures and for veterinarians to adopt appropriate measures towards animals in contact with a suspected animal case.</p>
10	Kenya	<p>One Health Community Education</p> <p>PREDICT/Kenya, jointly with OHW/OHCEA, FAO and USAID P&R conducted a One Health training event at Mpala between February 1st - 4th, 2018. During the training, participants were taken through a pandemic simulation to learn how to approach an outbreak investigation using PREDICT biosecurity, biosafety protocols. A total of 37 participants attended, drawn from University of Nairobi and Moi University postgraduate students and their faculty mentors, veterinarians at both the national and county (Laikipia) level, Kenya Wildlife Services, Laikipia County health officers and members of the local community. The students observed first-hand a defined high-risk interface, learning about the different drivers and human behavioral risk factors that contribute to the emergence and/or spread of pathogens. In addition, the students learned how to apply the One Health concept to mitigate some of the problems the local community were experiencing (frequent diarrhea and flu-like symptoms).</p>

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11	Republic of Congo (RoC)	<p>Collaborative Efforts</p> <p>PREDICT/RoC successfully assisted in the implementation of a multi-sectoral One Health (EPT) consortium in 2017 involving: MoD, MoH, Ministry of Agriculture, Ministry of Forestry and Wildlife, Ministry of Environment, Ministry of Scientific Research, Ministry of Finance, Homeland Ministry, WHO, and FAO.</p>
12	Rwanda	<p>Zoonotic & Joint Surveillance Strategies</p> <p>PREDICT Rwanda participated and contributed expertise in a One Health SMART workshop convened by the One Health Workforce team to prioritize zoonotic diseases and develop a strategy for joint surveillance.</p>
13	Senegal	<p>Animal - Human Analysis</p> <p>In an effort to strengthen Senegal's laboratory networks and capacity for rapid detection of priority zoonotic diseases, a GHSA priority, PREDICT/Senegal held laboratory trainings on PREDICT protocols at UCAD and ISRA. This training was conducted by Dr. Alexandre Tremeau-Bravard from the University of California, Davis from 14-25 August, 2017. During this training period, PREDICT successfully provided an overview of general laboratory safety and sample handling including RNA extraction, cDNA synthesis, RNA quality check and consensus PCR for Filoviruses, Coronaviruses, Influenzas and Paramyxoviruses. UCAD and ISRA, critical nodes in Senegal's animal and human surveillance and laboratory networks, are now more skilled and working to advance Senegal's capabilities for detecting priority zoonotic diseases. As a result of the training the laboratories of UCAD and ISRA are now performing viral detection on animal and human samples collected by the PREDICT project.</p>
14	Sierra Leone	<p>PREDICT attended and presented at the World One Health day celebration on Friday November 3rd, 2017, organized by the USAID Preparedness and Response (P&R) project in coordination with the Ministry of Health and Sanitation (MOHS) and the Ministry of Agriculture, Forestry, and Food Security (MAFFS). The meeting was attended by government representatives and several key partners (PREDICT, CDC, USAID Mission, FAO, WHO, and Njala University) to raise awareness and provide updates for ongoing One Health projects in Sierra Leone. PREDICT was highlighted as an example of One Health in action.</p>
15	Tanzania	<p>PREDICT/Tanzania Country Coordinator coordinated a group of 70 UGs and organized a session discussing PREDICT's One Health approach to surveillance. Postgraduates at SUA, took part in a training with OHCEA and 4 sessions on PREDICT. At IHI, the Director of sciences gave a presentation on PREDICT focusing on One Health. These sessions serve to increase the understanding and importance of One Health in Tanzania's future workforce.</p>
16	Uganda	<p>PREDICT trained four veterinary students attending Makerere University's College of Veterinary Medicine, Animal Resources and Biosecurity (COVAB) in the classroom on PREDICT modules and protocols for zoonotic disease, biosecurity, and animal handling and sampling. These students then obtained in situ experience with wildlife field surveillance activities, where they gained hands-on skills in safely and humanely capturing and sampling bats and rodents in and around people's farms and dwellings.</p>
17	ASIA	

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18	Bangladesh	<p>Collaborative Epidemiological Investigating Effort November 28 to December 4, 2017, the PREDICT/Bangladesh team was requested by the Government of Bangladesh to use a One Health approach to investigate a crow mortality event in Dhaka City.</p> <p>The crow mortality event was identified at a regular PREDICT wildlife surveillance site. The investigation was led by the Institute of Epidemiology, Disease Control and Research (IEDCR) in collaboration with PREDICT, the Bangladesh Livestock Research Institute (BLRI) and the Government of Bangladesh (GoB) Department of Livestock Services (DLS).</p> <p>Through the One Health Secretariat, PREDICT/Bangladesh collaborated with a team from the DLS during sample collection for this outbreak, as DLS has not participated in a crow outbreak previously, to increase the capacity of DLS to respond to crow mortality events. PREDICT/Bangladesh and DLS were both involved in GoB meetings to discuss the One Health outbreak response and regularly updated the One Health Secretariat. This is the first joint outbreak response for DLS and the PREDICT/Bangladesh team through the One Health Secretariat, which reflects the institutionalization of One Health and workforce capacity development among Government of Bangladesh partners.</p> <p>Investigating Bat Population Near Human Viral Incident February 7th-12th, 2018, the PREDICT/Bangladesh team was requested to participate in a One Health investigation of bats roosting near a suspected Nipah virus outbreak in people of Bagura, Bangladesh.</p> <p>January 29th – 31st, 2018, a PREDICT/Bangladesh team member participated in the Prince Mahidul Award Conference in Thailand. The participant presented a poster on PREDICT's One Health activities in Bangladesh.</p>
19	Cambodia	<p>Collaborative OH Surveillance & Sampling Effort</p> <p>PREDICT/Cambodia conducted training to update team members on protocols for surveillance in bats and rodents, livestock and humans, laboratory safety and sample handling and storage. The team included local national PREDICT staff, staff from the National Animal Health and Production Institute (NAHPRI), the Forestry Administration (FA), the Cambodian CDC and veterinary and bioscience students from the Royal University for Agriculture, and the Royal University of Phnom Penh. Following the training this team participated in coordinated sampling efforts using a One Health approach at a rodent trade hub on the border with Vietnam and in a bat guano harvesting community in cooperation with district animal and human health officials. By extending training to include government and University individuals, PREDICT/Cambodia is contributing to increasing the understanding of One Health as well as the Cambodia work force.</p>
20	Indonesia	<p>Collaborative Efforts</p> <p>In-service One Health training during PREDICT/Indonesia field surveillance activities with local partners from universities, ministerial offices of animal and public health, hospitals and primary health care centers.</p> <p>- In collaboration with the South East Asia One Health University Network (SEAOHUN), PREDICT/Indonesia hosted a fellow from the University of Malaya, Kuala Lumpur, an instance of cross-boundary workforce development efforts. SEAOHUN awarded an internship to Ms. Tengku Idzan Nadzirah, who worked with PREDICT-Indonesia's two laboratory partners (PRC-IPB in Bogor and EIMB in Jakarta) for three months, an opportunity for both professional mentorship and skill development. Based on the success of this mentorship, SEAOHUN is planning to allocate two candidates for their fellowship program in 2018 to work with PREDICT-Indonesia's laboratory partners.</p>

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21	Lao PDR	<p>In October 2017, PREDICT/Lao PDR coordinated a meeting in Vientiane that brought together staff from the National Animal Health Laboratory (NAHL) and the National Center for Laboratory and Epidemiology (NCLE), providing a valuable opportunity for professionals from animal and human health sectors to develop working relationships, to discuss common goals in the context of PREDICT and to continue open lines of communication between national-level organizations. In the two weeks following this meeting, 2 NAHL staff (1 female) and 3 NCLE staff (1 female) took part in hands-on refresher sessions in PREDICT diagnostics and training in preparation of samples for viral sequencing, strengthening capacity in both animal and human health labs for zoonotic viral detection in Lao PDR. Shared protocols and collaboration of human and animal health laboratory professionals is integral to the PREDICT project in Lao PDR, and more importantly, aligns organizations for successful implementation of the One Health approach and allows Lao PDR to strengthen its capacity to detect and respond to zoonotic disease threats.</p> <p>During March 2018, six in-service professionals (1 doctor, 2 nurses [1 female], 1 lab technician, and 2 hospital administrative staff [1 female]) at Khong District Hospital in Champasack Province, Lao PDR, were trained in the following: PREDICT policies; protocols for biosafety and PPE; emergency preparedness; basic laboratory safety; provision of assistance during a disease outbreak or health event; human syndromic surveillance; and ethics for human subject research. This training strengthens the foundation of a One Health approach in this rural region by educating human health professionals on the risk of zoonotic disease and strengthening skillsets to enable involvement of these professionals in data collection to support development of interventions to mitigate the risk of spillover and spread of zoonotic viruses. This training marks the expansion of PREDICT's scope in Lao PDR, adding human biological sampling and increasing human behavioral surveillance in a geographic region where wildlife and livestock have been concurrently sampled by PREDICT and FAO since 2016. Improving this community's capacity for concurrent surveillance of zoonotic viruses in animals and humans with the aim to mitigate risks that originate at the interface between humans and animals lays important groundwork for growth of the One Health approach in Lao PDR.</p>

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22	Malaysia	<p>14 October 2017 – PREDICT/Malaysia Country Coordinator met with YB Datuk Seri Mah Su Keong, Minister of Plantation Industries and commodities and YB Datuk Dr Kalayan Sundram, Director Malaysian Palm Oil Council. PREDICT/Malaysia Country Coordinator briefed them on PREDICT and IDEEAL work and the important role of Sabah Wildlife Department's Wildlife Rescue Unit (WRU) and Wildlife Health Unit (WHU) in this work and its One Health approach. The Country Coordinator highlighted the impact that this work is having both on wildlife and human health. Minister agreed that Ministry of Plantation Industries and commodities will continue to provide financial support to MPOC to fund WRU and WHU. The One Health aspect of the WRU and WHU work was one of the main reasons the Minister approved further funding as their work is not just benefiting conservation but public health as well.</p> <p>6 – 8 December 2017 - PREDICT/Malaysia arranged through the US Embassy using DTRA funding for 2 vets from Sabah Wildlife Department / WRU to attend the 4th Joint International Tropical Medicine Meeting held in Bangkok. Each year, the Faculty of Tropical Medicine host this event, giving researchers, policy-makers, doctors, scientists, public-health professionals, and students the opportunity to meet and learn from one another, for the improved health of people living in, and traveling through, the Tropics. The theme this year was ""Tropical Medicine 4.0 Effective Collaboration for an Impact on Global Health."" The meeting program covered a large range of tropical diseases, especially those endemic to Asia, to include: malaria, dengue, helminthic infections, bacterial, viral, fungal and parasitic diseases, and the fields of disease epidemiology, drug development, education, and biology. Attending this conference helps the vets think about their role from a One Health perspective and how their activities directly impact on One Health agenda.</p> <p>13 March: In preparation for PREDICT/Malaysia's next round of Orang Asli concurrent sampling one new staff member from the Gua Musang District Health team was trained in PREDICT protocols including presentations on One Health and zoonosis.</p> <p>26 March: In preparation for next round of PREDICT/Malaysia Orang Asli concurrent sampling four new staff member from the Kuala Lipis District Health team were trained in PREDICT protocols including presentations on One Health and zoonosis. These trainings increase the capacity of Malaysia's workforce to implement One Health surveillance.</p>
23	Mongolia	<p>PREDICT/Mongolia contributed to the one-Health approach in Mongolia through workforce strengthening on activities:</p> <ol style="list-style-type: none"> 1. Continue training health (veterinary, zoonotic disease and protected area) specialists through Avian Influenza surveillance in wild birds at key targeted areas of Mongolia in 13 provinces including 6 province veterinary laboratory professionals, 3 protected area rangers and 3 province zoonotic disease center professionals on working as a team for surveillance, reporting outbreaks and responding, sending samples to the State Diagnostic Veterinary Laboratory 2. Continue to support State Central Veterinary Laboratory staff on workforce training though better disease detection, outbreak response and communication with environmental and health Ministries and officers for urgent communication and information sharing. 3. PREDICT/Mongolia supported establishment of Saiga PPR working Group to address wildlife disease outbreak issues among livestock health, environmental agency and national emergency management agencies and continue to educate professionals on One-health approach and need during various disease outbreaks among livestock wildlife and human health sectors.
24	Myanmar	<p>PREDICT/Myanmar team joined the consultation meeting of SEAOHUN which aimed to review and incorporate One Health related curricula and projects in the invited universities of Myanmar. University of Medicine 1, Yangon volunteered to initiate One Health related intervention for its undergraduate and postgraduate programs. PREDICT/Myanmar was able to provide expertise and guidance on One Health surveillance, biosafety and biosecurity and other topics.</p>

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25	Nepal	PREDICT/Nepal contributed to the development of a one health workforce in Nepal by training in-service field personnel, laboratory technicians and hospital staff on the One health concept and PREDICT protocols.
26	Thailand	<p>Biosafety & Field Sampling Training</p> <p>1. PREDICT/Thailand hosted training for one Malaysian scientist from the 2017 SEAOHUN Fellowship Program on October 9-15, 2017. The scientist received training in biosafety and field bat sampling.</p> <p>2. PREDICT/Thailand organized the "Global One Health Day 2017: One Health Challenges in Thailand 4.0 Era Conference" in collaboration with the Department of Disease Control on November 27, 2017. Thailand's Country Coordinator presented PREDICT/Thailand's progress as part of the One Health mission in Thailand.</p>
27	Vietnam	<p>Training & Capacity Building to Address Zoonotic Related Behavioral Risk</p> <p>Through partnership with PREDICT in Viet Nam, the Hanoi School of Public Health (a Viet Nam One Health University Network - VOHUN member) has increased capacity in conducting qualitative research as part of a One Health approach to addressing behavioral risk associated with zoonotic disease. PREDICT/Viet Nam provided training in One Health approaches to qualitative research to 11 female and 5 male members of the junior faculty or recent graduates of the HSPH. The teams in turn have been involved in conducting ethnographic interviews and facilitating focus group discussions on behavioral risks associated with animal/wildlife handling and contact.</p>
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29	MIDDLE EAST (Regional)	
30	Jordan	<p>Capacity Building, Government OH Efforts</p> <p>PREDICT/Jordan, in collaboration with USAID/Jordan, is actively engaging veterinarians and laboratorians in southern Jordan in One Health capacity-building activities, including improving diagnostic capabilities for zoonotic pathogens. Trainings in diagnostic laboratory techniques and implementing a One Health approach for government officials and veterinarians/laboratorians from Southern Jordan are currently in preparation to be held later this year. Southern Jordan does not have the same One Health capabilities as Middle and Northern Jordan, which is why these trainings will help bridge the gap.</p>
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32	*for the period 10/1/17-9/30/18 ONLY	
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2	Indicators 2.1a	Total # of faculty members that received OH training or professional development	Females	Males	Animal Health Field	Human Health Field	Other
3	AFRICA (Regional)						
4	Cameroon						
5	Cote d'Ivoire						
6	DRC						
7	Ethiopia						
8	Ghana						
9	Guinea						
10	Kenya						
11	Liberia						
12	RoC						
13	Rwanda						
14	Senegal						
15	Sierra Leone						
16	Tanzania						
17	Uganda						
18	ASIA (Regional)						
19	Bangladesh						
20	Cambodia						
21	China						
22	India						
23	Indonesia						
24	Lao PDR						
25	Malaysia						
26	Mongolia						
27	Myanmar						
28	Nepal						
29	Thailand						
30	Vietnam						
31	MIDDLE EAST (Regional)						
32	Egypt						
33	Jordan						
34	GLOBAL						
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36	TOTAL						
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38	*for the period 10/1/17-9/30/18 ONLY						

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2	Faculty are defined as those within a University/academic research institute that report as not being a student; participant can report multiple fields of health area
3	*for the period 10/1/17-3/31/18 ONLY
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1	INDICATOR TITLE CHANGE: List of publicly available educational, training, and/or implementation resources developed and shared						
2	Indicators 2.1b	Total # of educational materials developed	OH Modules	Case Studies	Training Manuals	Textbooks	Other (including PPT's)
3	AFRICA (Regional)						
4	Cameroon						
5	Cote d'Ivoire						
6	DRC						
7	Ethiopia						
8	Ghana						
9	Guinea						
10	Kenya						
11	Liberia						
12	RoC						
13	Rwanda						
14	Senegal						
15	Sierra Leone						
16	Tanzania						
17	Uganda						
18	ASIA (Regional)						
19	Bangladesh						
20	Cambodia						
21	China						
22	India						
23	Indonesia						
24	Lao PDR						
25	Malaysia						
26	Mongolia						
27	Myanmar						
28	Nepal						
29	Thailand						
30	Vietnam						
31	MIDDLE EAST (Regional)						
32	Egypt						
33	Jordan						
34	GLOBAL	3			3		
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38	*for the period 10/1/17-3/31/18 ONLY						

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2	<i>Educational Materials refer to instructional course or training modules/materials (including course packets, instructor guidelines, quizzes, standard operating protocols), stand-alone textbooks or case studies, FETPV materials</i>
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2			SEX			AFFILIATION		
3	Indicators 2.2a	Total # of future professionals trained	Male	Female	Undeclared	Animal Health Field	Human Health Field	Other
4	AFRICA (Regional)							
5	Cameroon							
6	Cote d'Ivoire							
7	DRC							
8	Ethiopia							
9	Ghana							
10	Guinea							
11	Kenya							
12	Liberia							
13	RoC							
14	Rwanda							
15	Senegal							
16	Sierra Leone							
17	Tanzania							
18	Uganda							
19	ASIA (Regional)							
20	Bangladesh							
21	Cambodia							
22	China							
23	India							
24	Indonesia							
25	Lao PDR							
26	Malaysia							
27	Mongolia							
28	Myanmar							
29	Nepal							
30	Thailand							
31	Vietnam							
32	MIDDLE EAST (Regional)							
33	Egypt							
34	Jordan							
35	GLOBAL							
36	TOTALS							
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39	*for the period 1/1/17-3/31/18 ONLY							
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3	<i>Future professionals = Individuals enrolled in certificate/degree programs at member universities, regardless of whether were once in the workforce or not. This classification is based on self-identification by the participant on OHW training rosters. For P2, students are self-identified during training sessions.</i>
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1	NEW INDICATOR							
2			SEX			AFFILIATION		
3	Indicators 2.2ba	Total # of OH fellows placed	Male	Female	Undeclared	Animal Health Field	Human Health Field	Other
4	AFRICA (Regional)							
5	Cameroon	8			8			
6	Cote d'Ivoire (EHA)							
7	Côte d'Ivoire (IP)							
8	Côte d'Ivoire (IP/EHA)	6			6			
9	DRC	28			28			1
10	Ethiopia							
11	Ghana							
12	Guinea							
13	Kenya	3	3			3	2	
14	Liberia							
15	RoC							
16	Rwanda							
17	Senegal	10			10			
18	Sierra Leone							
19	Tanzania	9			9	0		1
20	Uganda	4			4	1		
21	ASIA (Regional)							
22	Bangladesh	1			1			1
23	Cambodia							
24	China							
25	India							
26	Indonesia	1		1				
27	Lao PDR							
28	Malaysia							
29	Mongolia							
30	Myanmar	1			1			
31	Nepal	1			1	1		
32	Thailand	1			1			
33	Vietnam							
34	MIDDLE EAST (Regional)							
35	Egypt							
36	Jordan							
37	GLOBAL							
38	TOTAL	73	3	1	69	5	2	3
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41	*for the period 10/1/17-3/31/18 ONLY							
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3	<i>Fellowship includes temporary placement in an approved One Health organization/activity; Fellows include students and early-career professionals</i>
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1	Indicator 2.2c		By Sex			Affiliation			
2		Total # of current professionals trained					Academia/Research		
3	AFRICA		Male	Female	Undeclared	Government		Other	Student
4	Cameroon								11
5	Cote d'Ivoire								2
6	DRC								
7	Ethiopia								
8	Ghana								
9	Guinea								1
10	Kenya								3
11	Liberia								
12	RoC								
13	Rwanda								
14	Senegal								
15	Sierra Leone								
16	Tanzania								2
17	Uganda								
18	ASIA								
19	Bangladesh								1
20	Cambodia								1
21	China								2
22	India								
23	Indonesia								
24	Lao PDR								
25	Malaysia								15
26	Mongolia								
27	Myanmar								
28	Nepal								
29	Thailand								
30	Vietnam								4
31	MIDDLE EAST								
32	Egypt								
33	Jordan								
34	Global Team								1
35									
36	TOTAL								
37	*for the period 10/1/17-9/30/18 ONLY								
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2		Current professional: all project staff (including faculty, lab and veterinarians, and administrative/support staff who work on the P2 project).													
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1	INDICATOR CHANGE: NOT REPORTING ON THIS ANYMORE	
2	Indicator 3B (Outcome Level)	QUALITATIVE INDICATOR: List/Description of national/regional coordination mechanisms showing improved capacity *include national/regional mechanism that has shown improvement, evidence of improvement (how/why coordination mechanisms has shown improvement)
3	Indicate Country, Region or Global	
4	Bangladesh	Between January 2nd – 7th, 2018, the PREDICT Bangladesh Team, jointly with FAO, conducted a “Four-Day Training on Cross Border Livestock Animal Movement Associated Disease Study” in the northwestern border district of Dinajpur Bangladesh. The aim of this work is to investigate the trans-boundary animal value chain between Bangladesh and India. In this training, the following topics were discussed: personal safety; animal welfare; sampling procedures; and sample storage, processing, and shipment.
5	China	PREDICT/China team coordinated the 1st International Workshop on Biosafety Laboratory Management and Experimental Techniques at Wuhan Institute of Virology on 18-28 October, 2017, where PREDICT/China in-country staff from Thailand, as well as 20 other participants from Asian and African countries were invited to attend and receive trainings on laboratory practice for high-level biosafety laboratories.
6	Cote d'Ivoire	PERSONNEL TRAINING, MONITORING SYSTEMS, COMMUNICATION EFFORTS. PREDICT/CIV activities have contributed to improvements in the research capacity of investigators at select sites. PREDICT/CIV team members have trained nurses, community agents, and forestry and wildlife rangers, thereby raising awareness in villagers. The PREDICT/CIV team has helped the Direction of Veterinarian Services and the Direction of Fauna and Game Resources build their surveillance systems. PREDICT.CIV staff have fostered better communication between ministries, institutions, leaders, coordinators, and people working in the field. PREDICT/CIV contributed to capacity improvement attending and contributing to the workshops and the activities of the Technical secretariat, responsible for coordination of the GHSA in Côte d'Ivoire.
7	Democratic Republic of Congo	PREDICT DRC actively participated in the Joint External Evaluation (JEE) of the International Health Regulations in the Democratic Republic of Congo from March 16-20, 2018 in Kinshasa. DRC government and national experts, technical experts from Benin, France, Mauritania, Morocco and Senegal, and experts from international organizations (PATH, CDC, WHO, etc.) came together to assess the country's ability to prevent, detect and respond quickly to threats to public health, using the One Health approach. PREDICT/DRC played a contributory role in the laboratory subgroup during this evaluation process, providing explanations and clarifications regarding zoonotic diseases, and the PREDICT/DRC laboratory manager continues to be active in the JEE laboratory breakout group where priority objectives and activities are being identified as part of a national action plan to improve DRC's capacity to respond to public health threats.
8	Ethiopia	PREDICT-2 Ethiopia contributed in the improvement of disease diagnostic capacity through provision of training to laboratory technicians in the Aklilu Lemma Institute of Pathobiology, the Ethiopian Public Health Institute, and graduate students at Addis Ababa University.

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2	<i>Includes evidence of Improved coordination of the national focal points with sub-national and community levels; multi-ministry or multi-sectoral teams on the ground (for example, in outbreak investigations).</i>
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9	Ghana	<p>IMPROVED SURVEILLANCE & LAN ANALYSIS</p> <p>PREDICT/Ghana personnel from the Wildlife Division, Ministry of Land and Natural Resources; Veterinary Services Directorate of the Ministry of Food and Agriculture; and Noguchi Memorial Institute for Medical Research were actively involved in the One Health Zoonotic Disease prioritization workshop in Ghana organized by FAO under the guidance of CDC in April 2018. PREDICT/Ghana and its partner institutions played key leadership roles in identifying the list of priority zoonotic diseases for the country.</p> <p>Through cross-sectoral engagement of partners, including Ghana Health Service; Veterinary Services Directorate, Ministry of Food and Agriculture; Wildlife Division, Ministry of Land and Natural Resources, the Noguchi Memorial Institute for Medical Research at the University of Ghana, and the Ghana Armed Forces, coordination among the three ministries and with the university has greatly improved as they work together on the surveillance and laboratory analyses for PREDICT/Ghana and participate in GHSA activities. This enhanced capacity in coordination is evidenced by the request for the Wildlife Division and Noguchi Memorial Institute to champion the investigation of the Lassa Fever case in Ghana in collaboration with the Ghana Health Service.</p>
10	Guinea	<p>Strengthening of national laboratory and surveillance systems</p> <p>To support strengthening national laboratory networks in Guinea for rapid detection of filoviruses, PREDICT/Guinea organized a general training on testing of samples using the PREDICT protocols. The training was conducted by Dr. Alexandre Tremeau-Bravard from the University of California Davis. It provided an overview of the whole process including general laboratory safety and sample handling from RNA extraction, cDNA synthesis, RNA quality check and consensus PCR for Filoviruses. A total of 12 Laboratory staff from the Viral Hemorrhagic Fever Laboratory, Central Veterinary Diagnostic Laboratory and Laboratory of National Institute of Public Health participated in the training. These laboratories, all critical nodes in Guinea's animal and human surveillance and laboratory networks, are now more skilled and working to advance Guinea's capabilities for detecting known and novel viral threats. "</p> <p>PREDICT/Guinea participates in the monthly GHSA-One Health Committee Meeting. Participating Groups include Ministers of Health, Livestock and Environment. These meetings strengthen the development of the national One Health platform and associated activities in Guinea.</p>
11	Kenya	<p>Disease reporting/surveillance:</p> <p>PREDICT/Kenya participated and gave suggestions on the need to include wildlife reports if any to support the complete picture on the ground. PREDICT/Kenya underscored the importance to capture wildlife data in the same way as in livestock by requesting that DVS considers training the KWS vets/ wardens/those people working closely with wildlife.</p> <p>PREDICT has participated in such meetings where FAO in conjunction with DVS had organized training on disease reporting targeting Counties and Sub-counties.</p>
12	India	<p>On 17 January, 2018, the PREDICT India Field Coordinator attended the Annual Review Meeting of GHSA in India, held in New Delhi. The review panel included Secretaries and Director Generals (DGs) of Ministry of Health and Family Welfare (MoH&FW), Government of India (GoI) – Ms Preeti Sudan (H&FW), Prof K VijayRaghavan (Department of Health Research; DHR, and DG-Indian Council of Medical Research; ICMR) and newly appointed Dr B D Athani (DG-Health Services) – among others. Ms MaryKay Loss Carlson, Deputy Chief of Mission, Dr Kayla Laserson, Country Director, Centre for Disease Control and Prevention (CDC) and Mr Mark A White, Mission Director, US Agency for International Development (USAID) were also in attendance from US Embassy, New Delhi. This meeting focused on a comprehensive review of all GHSA activities in country, and fosters multi-sectoral cooperations and collaborations.</p>

	A	B
13	Indonesia	<p>Personnel Training, Biosafety Preparedness</p> <p>PREDICT/Indonesia organized a training and introduction of Biosafety and Good Clinic Practices in Biomedical Research in Health Facilities Settings, conducted at Noongan Hospital on 31 January – 1 February 2018. The training was well-attended by 66 participants (48F, 18M). The seminar participants included clinicians and laboratory staff from 13 Puskesmas within the District of Minahasa, from 14 Puskesmas within the District of Southeast Minahasa (Minahasa Tenggara), Noongan District Referral Hospital in Minahasa, representatives from North Sulawesi Provincial Health Office, Minahasa District Health Office, and Southeast Minahasa (Minahasa Tenggara) District Health Office. The topic of the training included: the improvement of biosafety aspects toward the health facilities accreditation; general biosafety procedures in health facility settings; good laboratory practices; and basic good clinical practices in biomedical research involving human subjects at health facilities. Participants commented positively that the training helped to prepare each Puskesmas for an upcoming accreditation program as required by the Ministry of Health. The training was taken as preparation toward the accreditation. PREDICT/Indonesia provided biosafety starter kits to all participants. The workshop was funded jointly by USAID's PREDICT and PRESTASI III programs.</p>
14	Jordan	<p>In 2016, PREDICT-/Jordan initiated a PREDICT-2 Focal Point Committee including focal points from the Ministry of Health, Ministry of Agriculture, Ministry of Environment, World Health Organization (WHO), Food and Agriculture Organization of the United Nations (FAO), World Organisation for Animal Health (OIE), Royal Scientific Society (RSS), and Hashemite Fund for Development of Jordan Badia. This committee continues to meet regularly to update all partners about the PREDICT-2 project and also serves as a platform for implementation of the One Health approach in Jordan. Since the initiation of this committee, there have been marked improvements in communication among ministry focal points regarding One Health topics in Jordan. It has also led to inclusion of focal points and PREDICT Jordan in activities such as a tabletop simulation to test and update the National Pandemic Influenza Preparedness and Response Plan and implementation of the National Action Plan for Health Security developed with WHO.</p>
15	Malaysia	<p>Increased Sampling Collaboration</p> <p>PREDICT/Malaysia has an ongoing collaboration with the Ministry of Health, Department of Veterinary Services and Department of Wildlife and National Parks (PERHILITAN), as well as coordinating with these three government agencies to conduct concurrent sampling on wildlife, domestic / livestock, and at-risk human populations with high levels of contact with animals at Orang Asli villages on Peninsular Malaysia. In Sabah PREDICT/Malaysia has similar engagement with Sabah Wildfire Department and Sabah State Health Department. Through this engagement PREDICT continues to see an improvement in collaboration and coordination between these agencies. There is an improved exchange of information, greater coordination and increased willingness to share resources and work together. PREDICT results are being approved quicker for release and more widely discussed between all parties and across Peninsular Malaysia and Sabah.</p> <p>16 March 2018: the new molecular zoonosis laboratories at PERHILITAN's National Wildlife Forensic Laboratory were re-certified as a BSL- 2 laboratory according to the Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th Edition (December 2009), the United States standard for laboratory specifications after its first year of operation. PREDICT/Malaysia has played an active role in helping to manage this facility and has been asked by PERHILITAN to now become an official part of the management committee.</p>
16	Mongolia	<p>Personnel Training - Monitoring, Surveillance, Outbreak Investigation</p> <p>PREDICT/Mongolia continue to assist with training and capacity building of key professionals from 6 province veterinary laboratory, 3 protected area rangers and 3 province zoonotic disease center professionals on various topics including outbreak response and investigation, One Health monitoring and surveillance, personal protective equipment, and wild bird identification.</p>

	A	B
17	Myanmar	<p>Personnel Training</p> <p>PREDICT/Myanmar participated in an ongoing wild elephant collaring study, training with veterinarians of the Myanmar Timber Enterprise (MTE) of the Ministry of Natural Resources and Environmental Conservation (MONREC) in Ngapudaw, Ayarwaddy region in collaboration with WWF. Altogether 10 vet officials, vet assistants and elephant trainers were trained for PPE, biosafety, implementation of cold chain and storage and transportation of samples, according to the PREDICT protocols in the elephant camp, MTE, Ngapudaw, Ayarwaddy region.</p> <p>Dr Soe Thu, vet officer, LBVD participated in fruit bat catching in Oakkan & Taikkyi, Yangon. He was s trained by PREDICT in PPE & biosafety, sampling methods and sample packaging and transportation. This training contributed to increasing Myanmar's workforce capacity.</p> <p>PREDICT/Myanmar team joined the One Health International Conference in Bangkok, in December 2017, increasing communication and collaboration potential with regional One Health partners.</p>
18	Nepal	<p>Coordination Mechanism Established</p> <p>PREDICT/Nepal established a coordination mechanism among Food and Agriculture organization (FAO), Nepal and Central veterinary laboratory (CVL) under Ministry of livestock development (MoLD) to plan and operate joint One Health research in urban communities.</p>
19	Republic of Congo (RoC)	<p>Through the multi-sectoral One Health (EPT) Consortium, the PREDICT/RoC Country Coordinator led advocacy at the national level, particularly at the level of the Ministry of Health and WHO, for the establishment of an EPT Consortium as part of the dynamic "One Health." This was done through the establishment of an IHR (International Health Regulations) Committee which, in the Congo, acts not only as an EPT Consortium (One Health) but also as an inter-sectoral or multi-sectoral committee for preparedness and response to disease outbreaks. This committee is chaired by the Director General of Epidemiology and Disease Control and Response (DGELM). This IHR Committee is one of the success stories to be put to the credit of PREDICT/RoC. It is within this framework that PREDICT/RoC supported the last Monkeypox epidemic in the North zone in 2017.</p>
20	Rwanda	<p>Improved Surveillance, Personnel Training,</p> <p>PREDICT/Rwanda continues to strengthen capacity for laboratory-based surveillance for emerging infectious pathogens of wildlife origin. PREDICT/Rwanda has trained laboratory technician's in the Ministry of Health's Rwanda Biomedical Center's National Reference Laboratory to apply pcr viral family testing protocols to biological samples collected from febrile patients, in order to document infection with viruses of zoonotic potential. Furthermore, the National Reference Laboratory is also applying these same PCR viral family testing protocols to biological samples from wildlife that are pre-processed at the Ministry of Agriculture/Rwanda Agriculture Board (RAB) Wildlife Virology Laboratory, demonstrating inter-ministry coordination that has occurred as a result of PREDICT/Rwanda surveillance. During this reporting period, 95 human and 45 bat specimens have undergone laboratory testing, and more than 250 wildlife samples have undergone pre-processing at RAB.</p>
21	Senegal	<p>Personnel Training</p> <p>PREDICT/Senegal principal investigator and country coordinator participated in the ""One Health Skills Integration"" workshop. The objective of the workshop was to provide One Health skills to current professionals to increase the capacity to understand and respond to health threats in the animal, human and environmental fields. This workshop brought together veterinarians, medical doctors, biologists, environmentalists, and military personnel. PREDICT/Senegal was able to share expertise on One Health surveillance including biosafety and biosecurity, collaboration between animal and human health partners, and safe sample transport, ultimately contributing to strengthening Senegal's national surveillance network.</p>

	A	B
		<p>Personnel Training & Refresher</p> <p>PREDICT/Sierra Leone successfully conducted a 10 day multi-national continuing education and refresher update training on biosafety and biosecurity (personal protection during field and laboratory work), field data collection and quality control, and animal sampling (bats and rodents) for 14 PREDICT Sierra Leone staff, 8 PREDICT Guinea staff, and 3 PREDICT Senegal staff at the University of Makeni Sierra Leone (October 1st – 10th , 2017).</p>
22	Sierra Leone	
23	Tanzania	PREDICT/Tanzania attended and supported the launch of the National One Health Platform in February 2017.
		<p>Government Collaboration, Personnel Training</p> <p>PREDICT/Thailand contributions include:</p> <p>Sharing surveillance and test results with governmental coordinators such as 1) Bureau of Emerging Infectious Diseases, Department of Disease Control, Ministry of Public Health, 2) Department of National Parks, Wildlife and Plant Conservation, Ministry of Natural Resources and Environment, and 3) Bureau of Disease Control and Veterinary Services, Department of Livestock Development, Ministry of Agriculture and Cooperatives.</p> <p>Sharing specimen sampling techniques and the PREDICT protocol concept with the Bureau of Epidemiology, DDC, at meetings titled “Sample Collection and Specimen Transferring for Diagnoses of Avian Influenza Virus in Suspected Cases” on October 18, 2017, “Sample Collection and Testing Methods for Diagnosis of Emerging Infectious Pathogens and Training on Specimen Collection and Handling” on November 30, 2017, and “Training on the Necropsy Technique for Collecting Brain and Lung Tissue Specimens for Laboratory Investigation” on December 20, 2017.</p> <p>-Sharing specimen sampling techniques and the PREDICT protocol concept with the Urban Institute for Disease Prevention and Control at a meeting titled “Laboratory Preparedness on Emerging Infectious Diseases,” on December 18, 2017.</p>
24	Thailand	
		<p>Collaborative Drafting of National Surveillance Plans</p> <p>PREDICT/Uganda contributed expertise in wildlife zoonotic disease surveillance, prevention and response in a governmental workshop to draft Uganda’s National Surveillance Plans for Brucellosis and Anthrax, held in Mukono, Kampala November 27 - December 1, 2017, organized by EPT2/FAO and attended by the Uganda Ministry of Agriculture staff and Uganda EPT2/GHSA partners. As well, PREDICT/Uganda participated in several workshops that advanced Uganda’s preparedness for outbreak response and surveillance: the Uganda One Health stakeholders titled Mapping and After Action Review of Avian Influenza Outbreak, on December 12-14, 2017 in Kampala; a workshop for developing the Uganda National Surveillance Plan for Rabies and Highly Pathogenic Avian Influenza in Jinja January 29 - February 2, 2018, facilitated by FAO; a workshop to draft the Communication Strategy for the National One Health Platform and the launch of the National One Health Strategic Plan on February 14-15, 2018, in Kampala; and a workshop on Strengthening the National Epidemiosurveillance Networks and Outbreak Response to Priority Zoonotic Diseases, held February 26 - March 2, 2018, in Masaka, facilitated by FAO.</p>
25	Uganda	
		<p>LISN Initiative for Surveillance & Testing</p> <p>PREDICT/Viet Nam contributed to efforts to coordinate surveillance for influenza and emerging pathogens through the LISN initiative in Viet Nam. The LISN initiative includes PREDICT, FAO, WHO, USAID, and the Government of Viet Nam through the Ministry of Agriculture and Rural Development and the Ministry of Health. FAO influenza surveillance in poultry and swine, WHO SARI and ILI surveillance in hospitals and clinics, and PREDICT surveillance have been coordinated to expand testing of surveillance samples by applying PREDICT protocols for Filo, Flavi, Corona, and Paramyxoviruses in addition to the influenza surveillance already conducted in livestock and syndromic humans in Viet Nam. The coordination covers the timing of field surveillance, protocols for sample collection and laboratory testing, and the joint analysis of surveillance data across the animal and public health sectors.</p>
26	Vietnam	
27		
28	*for the period 10/1/17-9/30/18 ONLY	

	A	B
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2	Indicator 3B (Outcome Level)	QUALITATIVE INDICATOR: List/Description of global, regional or country (lab, surveillance, workforce, OH, AMR) strategies under implementation *include title of strategy, brief description of focus/topic of strategy, if the strategy was endorsed and by whom
3	Indicate Country, Region or Global	
4	Bangladesh	<p>PREDICT/Bangladesh attended the following meetings and contributed One Health expertise:</p> <p>October 27th, 2017: The PREDICT team participated in a One Health economic meeting at the World Bank office in Dhaka, organized by the World Bank Bangladesh office. The following partners were included: One Health Bangladesh, IEDCR, DLS, and P&R.</p> <p>On the 4th of December 2017, PREDICT participated in a meeting held by the National Technical Committee on Avian Influenza, organized by DLS.</p> <p>On the 19th of December 2017, the team participated in a workshop on the Transmission of Avian influenza from wild to domestic birds, which was organized by the IUCN.</p>
5	Cambodia	PREDICT/Cambodia attends and provides expertise for the Cambodian government's Zoonotic Technical Working Group
6	Cote d'Ivoire	<p>National Sanitary Security Plan in CIV.</p> <p>Providing expertise in One Health surveillance, viral detection, and multi-sectoral information sharing at workshops. Upon invitation from the Coordinating Unit, PREDICT/CIV contributed to the One Health approach to surveillance for priority zoonosis and emerging threats by supporting working groups in preparation for the workshops.</p> <p>The PREDICT CIV team reviewed the pathogen classification system and evaluated the prioritization of microorganisms during a workshop at IPCI on December 17, 2017.</p> <p>Developing an integrated surveillance system for zoonosis.</p> <p>On December 2, 2017, PREDICT/CIV was invited to take part in a workshop on monitoring systems of animal biodiversity and integrated surveillance of zoonosis, organized by the FETP-Frontline. The workshop was aimed at developing an integrated surveillance system for zoonosis within the framework of One Health approach, following the recommendations of the Joint External Evaluation and the prioritization of zoonotic diseases to be monitored in Côte d'Ivoire (anthrax, salmonellosis, rabies, highly pathogenic avian influenza, bovine / human tuberculosis, hemorrhagic fever, brucellosis, echinococcosis, cysticercosis, and Rift Valley fever).</p>
7	Ethiopia	<p>In December 2017, the PREDICT/Ethiopia Country Coordinator attended the "Ethiopia National One Health Strategic Plan Validation, Organizational Structure Development and MoU Review Workshop," organized by USAID Preparedness and Response. Also in December 2017, The purpose of the workshop was to review and validate the draft National One Health Strategic Plan, agree on the Organizational Structure of the National One Health Platform and review and agree on the inter-sectoral collaboration, Memorandum of Understanding. In January 2018, PREDICT/Ethiopia participated in OH Steering Committee Meetings where the National One Health Strategic Plan (2018-2022) for Ethiopia was endorsed.</p> <p>Also in December 2017, the PREDICT/Ethiopia Country Coordinator attended a workshop organized by FAO ECTAD and the National One Health Steering Committee (NOHSC). The aim of the workshop was to initiate the establishment of a multi-stakeholder and inter-sectoral National One Health Communication Network (OHCN), in Ethiopia in collaboration with the Government Communication Affairs Office. The attendants of the workshop were the Government Communication Affairs Minister, Livestock and Fishery State Minister, Ethiopian Wildlife Conservation Authority General Director and FAO Representative to Ethiopia as well as delegates from Government Ministry offices, NGOs, academic and research institutions, professional associations, donors, development partners, organizations, and the media.</p>

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2	<i>Includes evidence of Improved coordination of the national focal points with sub-national and community levels; multi-ministry or multi-sectoral teams on the ground (for example, in outbreak investigations).</i>
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	A	B
8	Ghana	<p>PREDICT Ghana played a leadership role in the national GHSA One Health Zoonotic Disease Prioritization Workshop in March 2018. The workshop identified 31 zoonotic diseases in Ghana. Participants identified a list of six priority zoonotic diseases, including anthrax, rabies, zoonotic tuberculosis, zoonotic avian influenza, hemorrhagic fevers, and trypanosomiasis.</p> <p>Dr. Richard Suu-Ire, the wildlife veterinarian at the Wildlife Division of the Ministry of Land and Natural Resources and the lead coordinator for wildlife disease surveillance for PREDICT in Ghana was invited to deliver a presentation entitled “Environmental Dimensions of Health Security –Strategies and Partnerships from Ghana” at the International Stakeholder Consultation on National Health Security and Pandemic Influenza Preparedness Planning in Ghana in December 2017. The objectives of the stakeholder consultation were to strengthen collaboration and coordination regarding the implementation of the national and global action plans of influenza pandemic preparedness and response with multi-sectoral stakeholders, including FAO and OIE; finalize the strategies and priorities with partners for influenza pandemic preparedness and response; share the status of country influenza pandemic preparedness, identify gaps and challenges and prioritize actions at national, regional and global level; align efforts among key stakeholders to address prioritized gaps and implement the WHO pandemic preparedness plan, within the framework of national action plan for health security. Through his presentation, Dr. Suu-Ire stressed the importance of the involvement of wildlife/environmental sector in the action plans for influenza preparedness as capacity in that sector is needed to address HPAI threats.</p>
9	Kenya	PREDICT/Kenya Country Coordinator participated in the Community Leaders' Consultative Meeting on Climate Change and its Effect on Social-Ecological Systems within Different Land Use Sysetms in Laikipia County, Kenya.
10	Liberia	<p>National One Health Platform Governance Manual; National Action Planning for Health Security; National Surveillance Plan for Monkey Pox</p> <p>The PREDICT/Liberia team has been involved in several national level discussions including: The drafting and finalization of the National One Health Platform governance manual, the National Action Planning for Health Security, and development of a national surveillance plan for monkey pox. The National One Health Platform has been established with several line ministries consisting of the steering committee with the Vice-President as chair. In addition, PREDICT/Liberia has recently been involved with developing a national NGO One Health forum that will align NGOs with government One Health activities and fit within the existing structure of the National One Health Platform.</p>
11	Malaysia	<p>Established EEHV surveillance for Sabah.</p> <p>The PREDICT/Malaysia Laboratory Manager attended the International workshop on molecular diagnosis for Elephant endotheliotropic herpesviruses (EEHV) infection at Faculty of Veterinary Medicine, Kasetsart University, Thailand with Wildlife Rescue Unit veterinarian Laura Benedict as part of the effort to help Sabah Wildlife Department to establish EEHV surveillance for Sabah.</p>
12	Mongolia	<p>Wildlife Friendly FMD Control Strategies</p> <p>PREDICT/Mongolia and FAO/OIE are supporting the National strategy on PPR Eradication, pushing for wildlife friendly FMD control strategies.</p>
13	Nepal	PREDICT/Nepal provided expertise to assist in building the One Health Network for South Asia at the "The second One Health International Conference 2017" in Thailand. As a result, Nepal is a member of the One Health Network for South Asia and will be contributing to building strong collaboration in the region for One Health activities.
14	Republic of Congo (RoC)	The RoC IHR committee is chaired by the Director General of Epidemiology and Disease Control and Response (DGELM). Within this framework, PREDICT RoC supported the last Monkeypox epidemic in the North zone in 2017. PREDICT/RoC contributed to the validation of the committee and its importance towards supporting One Health outbreak response activities.

	A	B
15	Senegal	<p>Mapping Health Risks</p> <p>PREDICT/Senegal participated in a National One Health meeting organized by the COUS (Center of Emergency Operations), Ministry of Health in February 2018. The purpose of this meeting was to validate and map the major health risks in Senegal. PREDICT/Senegal gave expertise in the discussion of mapping Senegal's health risks by region as well as identifying next steps towards further identification and reduction of health risks in the country.</p>
16	Sierra Leone	<p>GHSA/IHR/JEE five-year strategic activity; REDISSE project (sponsored by World Bank) review, prioritization, and planning process</p> <p>PREDICT participated as observers and advisors in the zoonotic disease prioritization workshop held in Freetown by DAI USAID Preparedness and Response Project from November 15- 17, 2017. Six Zoonotic Diseases were prioritized for multi-sector collaboration in the country: Viral Haemorrhagic Fevers (Ebola/Lassa), Rabies, Zoonotic Influenza (Avian, Swine), Salmonella, Anthrax, and Plague. PREDICT participated in the GHSA/IHR/JEE five-year strategic activity planning for the country in October 2017, organized by the Ministry of Health and Sanitation (MOHS) with support from WHO. This meeting will determine the top disease priorities for health sector development in Sierra Leone. PREDICT participated and provided technical support to the Government in the REDISSE project (sponsored by World Bank) review activity and prioritization and planning process, which took place in November and December 2017 in Freetown and Makeni, respectively.</p>
17	Thailand	<p>PREDICT-1 enterovirus PCR protocols, Thai Red Cross</p> <p>PREDICT-1 enterovirus PCR protocols have been implemented at the Thai Red Cross Emerging Infectious Diseases Health Science Centre (PREDICT lab) for testing patient specimens from the Ministry of Public Health (MOPH) under the National surveillance program for hand, foot, and mouth disease.</p>
18	Uganda	<p>Understanding zoonotic viral spillover from wildlife into people</p> <p>PREDICT/Uganda was requested to attend the 4th High-Level GHSA Ministerial meeting in Kampala on October 25-27, 2018 joining Uganda EPT partners in updating USAID GHSA leadership on its One Health approach to better understanding zoonotic viral spillover from wildlife into people.</p>
19	Vietnam	<p>Vietnam One Health Strategic Plan</p> <p>As a member of the One Health Partnership for Zoonosis in Viet Nam, PREDICT/Viet Nam contributed to the development of the Viet Nam One Health Strategic Plan for the period 2016 to 2020, led by the Ministry of Agriculture and Rural Development together with the Ministry of Health. PREDICT/Viet Nam contributions included providing guidance on research, surveillance and laboratory approaches designed to detect potential emerging zoonotic threats.</p>
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25	*for the period 10/1/17-9/30/18 ONLY	

	A	B	C	D	E	F	G
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2	Indicator 3.2a	Total # evidence-based informational resources developed	# policy briefs	# research papers	# situational analysis/risk assessment	# zoonotic prioritization resources	#Other
3	WEST AFRICA (Regional)						
4	Cameroon						
5	Cote d'Ivoire (EHA)						
6	Côte d'Ivoire (IP)						
7	Côte d'Ivoire (IP/EHA)						
8	Ghana						
9	Guinea						
10	Liberia						
11	Senegal						
12	Sierra Leone	1					1
13	& CENTRAL AFRICA (Regional)						
14	DRC	1		1			
15	Ethiopia						
16	Kenya						
17	RoC						
18	Rwanda						
19	Tanzania	1					1
20	Uganda						
21	ASIA (Regional)						

	H	I	J	K	L	M	N	O
1								
2	Provide a list and brief description of each resource: include a summary of the subject/topic, include country/region							
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12	PREDICT/Sierra Leone Country Coordinator, Dr. Gbakima was invited to speak at the West African Health Research Network 3rd annual scientific conference in Cotonou, Benin. He presented an oral abstract on PREDICT related activities in Sierra Leone.							
13								
14	Charles Kumakamba, Ipos Ngay Lukusa, Placide Mbala Kingebeni, Frida N'Kawa, Joseph Atibu Losoma, Prime M. Mulembakani, Maria Makuwa, Jean-Jacques Muyembe Tamfum, Raphaël Belais, Amethyst Gillis, Stephen Harris, Anne W. Rimoin, Nicole A. Hoff, Joseph N. Fair, Corina Monagin, James Ayukekbong, Edward M. Rubin, Nathan D. Wolfe, Christian E. Lange; DNA indicative of human bocaviruses detected in non-human primates in the Democratic Republic of the Congo. J Gen Virol. 2018 Mar 27. doi: 10.1099/jgv.0.001048							
15								
16								
17								
18								
19	PREDICT posters and outreach materials developed for the launch of the Tanzania National One Health Platform in February 2018.							
20								
21								

	A	B	C	D	E	F	G
22	Bangladesh	3		3			
23	Cambodia						
24	China	4		4			
25	India						
26	Indonesia						
27	Lao PDR	1					1
28	Malaysia	3		1			2

	H	I	J	K	L	M	N	O
22	<p>1.Ariful Islam, Jonathan H. Epstein , Melinda K. Rostal, Shariful Islam, Mohammed Ziaur Rahman, Mohammed Enayet Hossain, Mohammed Salim Uzzaman, Vincent J. Munster, Malik Peiris, Meerjady Sabrina Flora, Mahmudur Rahman, and Peter Daszak. Middle East Respiratory Syndrome Coronavirus Antibodies in Dromedary Camels, Bangladesh, 2015. Emerging Infectious Diseases Volume 24, Number 5. May 2018</p> <p>2.Ariful Islam, Md Lutfar Rahman, Shariful Islam, Premanondo Debnath, Mahabub Alam, and Mohammad Mahmudul Hassan. (2017). Sero-prevalence of visceral leishmaniasis (VL) among dogs in VL endemic areas of Mymensingh distict, Bangladesh. Journal of Advanced Veterinary and Animal Research, 4 (3): 241-248.</p> <p>3.Rahman, Mohammed Z., Najmul Haider, Emily S. Gurley, Sadia Ahmed, Mozaffar G. Osmani, Muhammad B. Hossain, Ariful Islam et al. Epidemiology and genetic characterization of Peste des petits ruminants virus in Bangladesh. Veterinary Medicine and Science (2018).</p>							
23								
24	<p>1. Zhou, P., Fan, H., Lan, T., Yang, X. L., Shi, W. F., Zhang, W., ... & Zheng, X. S. (2018). Fatal swine acute diarrhoea syndrome caused by an HKU2-related coronavirus of bat origin. Nature, 1.</p> <p>2. Wang, N., Li, S. Y., Yang, X. L., Huang, H. M., Zhang, Y. J., Guo, H., ... & Hagan, E. (2018). Serological evidence of bat SARS-related coronavirus infection in humans, China. Virologica Sinica, 1-4.</p> <p>3. Luo, Y., Li, B., Jiang, R. D., Hu, B. J., Luo, D. S., Zhu, G. J., ... & Shi, Z. L. (2018). Longitudinal Surveillance of Betacoronaviruses in Fruit Bats in Yunnan Province, China During 2009–2016. Virologica Sinica, 1-9.</p> <p>4.Hu, B., Zeng, L. P., Yang, X. L., Ge, X. Y., Zhang, W., Li, B., ... & Luo, D. S. (2017). Discovery of a rich gene pool of bat SARS-related coronaviruses provides new insights into the origin of SARS coronavirus. PLoS pathogens, 13(11), e1006698.</p>							
25								
26								
27	<p>PREDICT/Lao PDR presented a poster at the Prince Mahidol Award Conference 2018 on Jan 30- Feb 3 entitled: "Ongoing PREDICT 2 work in Laos - Synchronized Surveillance between PREDICT and FAO at Wildlife-Livestock-Human Interface.</p>							
28	<p>1.5 December 2017 - A documentary titled "The Amazon of the East – Balancing the scales" focusing on the Deep Forest Project in Kinabatangan aired on the Animal Planet Chanel (South East Asia).</p> <p>2.Salgado Lynn, M.; William, T.; Tanganuchitcharnchai, A.; Jintaworn, S.; Thaipadungpanit, J.; Lee, M.H.; Jalius, C.; Daszak, P.; Goossens, B.; Hughes, T.; Blacksell, S.D. Spotted Fever Rickettsiosis in a Wildlife Researcher in Sabah, Malaysia: A Case Study. Trop. Med. Infect. Dis. 2018, 3, 29.</p> <p>3.Jonathan H. Epstein, Tom Hughes, Frankie Sitam, Eric Laing, LatiffahHassan, Sazaly Abu Bakar, Khebir Verasahib, Ramlan bin Mohamed, Jeffrine Rovie Ryan Japning, and Christopher Broder. Serological Biosurveillance for Spillover of Henipaviruses and Filoviruses at Agricultural and Hunting Human-Animal Interfaces in Peninsular Malaysia. Prince Mahidol Award Conference 2018. Poster presentation.</p>							

	A	B	C	D	E	F	G
29	Mongolia						
30	Myanmar	2					2
31	Nepal						
32	Thailand	3		3			
33	Vietnam						
34	MIDDLE EAST (Regional)						
35	Egypt	1					1

	H	I	J	K	L	M	N	O
29								
30	<p>1.Presented the process, documentation, and preliminary findings from surveillance at PMAC conference: "RISK ASSESSMENT FOR THE TRANSMISSION OF EMERGING ZOO NOTIC VIRUSES IN MYANMAR" on Feb 2, 2018 in the panel discussion 3.4, PMAC 2018. Authors: Ohnmar Aung, M.B.B.S, M.A. (PRESENTER), Kyaw Yan Naing Tun, B.V.Sc., Marc Valitutto, V.M.D., .Suzan Murray, D.V.M., D.A.C.Z.M.</p> <p>2.Contributed to abstract for presentation at the ATBC 2018 in Borneo: "Emerging Bat Pathogens in Myanmar: Road Map for Surveillance of Potential Spillover Related to Cave UtilizationRegional scale analysis of bat-virus associations in South and East Asia to support One Health surveillance". Authors: Heather S. Davies, M.S., M.S., (PRESENTER), Alexis C. Garretson, B.S., Kathryn Hogan, M.S., Megan E. Vodzak, M.S., M.P.H., Marc Michael von Fricken, Ph.D., M.P.H., Ohnmar Aung, M.B.B.S, M.A., Kyaw Yan Naing Tun, B.V.Sc., Marc Valitutto, V.M.D., Suzan Murray, D.V.M., D.A.C.Z.M., and Dawn Zimmerman, D.V.M., M.S. A. Alonso Aguirre, D.V.M., M.S., Ph.D., and Michael von Fricken, Ph.D., M.P.H.</p>							
31								
32	<p>1.Wacharapluesadee S, Duengkae P, Chaiyes A, Kaewpom T, Rodpan A, Yingsakmongkon S, Petcharat S, Phengsakul P, Maneeorn P, Hemachudha T. Longitudinal study of age-specific pattern of coronavirus infection in Lyle's flying fox (Pteropus lylei) in Thailand. Virol J. 2018 Feb 20;15(1):38</p> <p>2. Chaiyes, A., P. Duengkae, S. Wacharapluesadee, N. Pongpattananurak, K.J. Olival, T. Hemachudha. 2017. Assessing the distribution, roosting site characteristics, and population of Pteropus lylei in Thailand. Raffles Bulletin of Zoology.</p> <p>3. Fooks AR, Cliquet F, Finke S, Freuling C, Hemachudha T, Mani RS, Müller T, Nadin-Davis S, Picard-Meyer E, Wilde H, Banyard AC. Rabies. Nat Rev Dis Primers. 2017 Nov 30;3:17091</p>							
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35	<p>PREDICT Egypt behavioral risk research was selected as an oral presentation at the 18th International Congress on Infectious Diseases in Buenos Aires, Argentina in March 2018. The presentation was titled, "Identifying Behavioral Risk Intervention Points to Prevent Zoonotic Spillover at Animal Markets, Farms, and Abattoirs in Egypt." Patrick Dawson gave the presentation during the "Zoonoses and One Health" session. The research is coauthored by Patrick Dawson and William B. Karesh of EcoHealth Alliance and Ahmed Kandeil, Amira Sayed, Mohamed A. Ali, and Ghazi Kayali of Egypt National Research Centre, the PREDICT Egypt implementing partner.</p>							

	A	B	C	D	E	F	G
36	Jordan	2					2
37	GLOBAL	8	3	4			1
38	TOTALS	30	3	16			11
39	*for the period 10/1/17-9/30/18 ONLY						
40	Global Research Papers:						
41	Altizer, S., D.J. Becker, J.H. Epstein, K.M. Forbes, T.R. Gillespie, R.J. Hall, D.M. Hawley , S.M. Hernandez, L.B. Martin, R.K. Pl						
42	Allen, T., K.A. Murray, C. Zambrana-Torrelío, S.S. Morse, C. Rondinini, M. Di Marco, K.J. Olival, P. Daszak.2017. Global hotsp						
43	Aysanoa, E., P. Mayor, P. Mendoza, E.A. Morales, J.G. Perez, M. Bowler, C. Gonzalez, J.A. Ventocilla, G.C. Baldeviano, A.G. I						
44	Rostal, M.K., N. Ross, C. Machalaba, C. Cordel, W.B. Karesh. 2018. Benefits of a one health approach: An example using f						

	H	I	J	K	L	M	N	O
36	<p>1.PREDICT/Jordan Country Coordinator Dr. Ehab Abu-Basha presented a poster at the 2018 Prince Mahidol Award Conference in Bangkok, Thailand titled, "Social and Cultural Difficulties Facing One Health Implementation: MERS-CoV Experience – A Success Story from Southern Jordan." The poster was coauthored by Ehab Abu-Basha and Zuhair Bani Ismail of Jordan University of Science and Technology, the PREDICT Jordan implementing partner, and Maysa Al-Khateeb of USAID/Jordan.</p> <p>2.PREDICT Jordan also authored an article for the Association of American Veterinary Medical Colleges (AAVMC)'s Council for International Veterinary Medical Education (CIVME) Newsletter titled, "PREDICTing the Next Pandemic: How One Health Scientists Are Changing the Way We Fight Infectious Diseases." The article appeared in the Fall 2017 issue and was authored by Patrick Dawson of EcoHealth Alliance. The article features the work of the PREDICT/Jordan team and quotes from various PREDICT/Jordan team members. URL: http://myemail.constantcontact.com/CIVME-News.html?soid=1104002974357&aid=5YQIkJyT7SE</p>							
37	<p>1.Carroll, D., P. Daszak, N.D. Wolfe, G.F. Gao, C.M. Morel, S. Morzaria, A. Pablos-Méndez, O. Tomori, J.A.K. Mazet. 2018. The Global Virome Project. <i>Science</i>. doi: 10.1126/science.aap7463</p> <p>2. Carroll, D, B. Watson, E. Togami, P. Daszak, J.A.K. Mazet, C.J. Chrisman, E.M. Rubin, N. Wolfe, C.M. Morel, G.F. Gao, G. L. Burci, K. Fukuda, P. Auewarakul & O. Tomori. 2018. Building a global atlas of zoonotic diseases. Bulletin of the World Health Organization. doi: 10.2471/BLT.17.205005.</p> <p>3. Schar, D., C.M. Machalaba, G. Yamey, W.B. Karesh. 2018. A framework for stimulating economic investments to prevent emerging diseases. Bulletin of the World Health Organization.doi:10.2471/BLT.17.199547</p> <p>4. Legall, F., C.M. Machalaba, W.B. Karesh, et al. 2018. Operational framework for strengthening human, animal and environmental public health systems at their interface. World Bank Report.</p>							
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41	owright, D.A.Satterfield. 2018. Food for contagion: synthesis and future directions for studying host–parasite responses to resource shifts in anthropogenic environments. <i>Philos</i>							
42	pts and correlates of emerging zoonotic diseases. <i>Nature Communications</i> . doi: 10.1038/s41467-017-00923-8.							
43	escano. 2017. Molecular Epidemiology of Trypanosomatids and Trypanosoma cruzi in Primates from Peru. <i>EcoHealth</i> .doi:10.1007/s10393-017-1271-8							
44	Rift Valley fever. <i>One Health</i> . doi:10.1016/j.onehlt.2018.01.001							

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41	<i>sophical Transactions of the Royal Society B.</i> doi: 10.1098/rstb.2017.010						
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	A	B
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2	Indicator 3.2b	#, list of community OH events coordinated *include title of event, date of event, brief description of the event including topic focus, geographic location (city/village/locale) and country in which it took place
3	Indicate Country, Region or Global	
4	Bangladesh	05 Nov 2017. One Health Day Celebration 2017. Sher-E Bangla Agricultural University and Jhenidah Government Veterinary College. PREDICT Bangladesh, along with P&R and One Health Bangladesh, organized a collaborative essay competition for students and future One Health practitioners on the eve of the One Health Day celebrations. The program included a rally and a One Health talk to encourage medical and veterinary students to participate in One Health.
5	Cote d'Ivoire	Oct 2017. Risky Interfaces. PREDICT/CIV's behavioral team led discussions with restaurant owners, butchers, bushmeat vendors, and animal resource officers to discuss their work and the One Health approach to risky interfaces in the Bouaflé region and in Marahoué National Park. This interaction was an opportunity to highlight risks associated with their business and how to work together to avoid risk. Jan 2018. Villager Meetings, Focus Groups, and 3-day Visit in Asproa. Villager meetings in Asproa, focus groups in Sergeant Konankro, and three-day visits of subsites (Boguekro and Djhakro) that allowed for sensitization of the population to work done by PREDICT/CIV, with discussions on the risk of bat-man-livestock exposure.
6	Ethiopia	26-27 Mar 2018. Consultation to Awash human and animal health service providers on emerging zoonotic viral diseases of great importance to human health
7	Ghana	Nov 2017. "PREDICT PROJECT- Surveillance for emerging zoonotic disease threats and behavioral risk characterization in high-risk communities". Nkoranza North District. Training workshop for the human disease surveillance component of the project. A three day event combined with community engagement at the surveillance sites including questionnaire administration and outreach on the PREDICT project with education on zoonotic diseases and One Health.
8	Guinea	PREDICT/Guinea organized 8 Community Engagement Meetings in (6) Villages of the Forest Region of Guinea. These meetings were held before starting animal sampling in a village to encourage a feedback loops for local knowledge throughout the project (PREDICT), Enable reflective and systematic examination of previous sampling sessions, to sensitize and mobilize the community to raise people's awareness of the role of the animal-human interface in viral transmission, an essential key to preventing outbreaks of zoonotic disease. Meetings attendants included representatives from the Ministry of Health, Ministry of Environment, Water and Forestry, Ministry of Livestock and Animal Resources, and community members. A minimum of 25 people attended each one of the meetings.
9	Indonesia	PREDICT/Indonesia facilitated several small community meetings and outreach events with village heads prior to the implementation of human community surveillance activities in North Sulawesi. Meetings were aimed at informing community leaders about zoonotic disease and explaining the goals of PREDICT surveillance.

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2	<i>Includes community-engagement and outreach, faculty/student clubs, trainings of community members/workers (e.g., farmers poultry handlers), risk communication events targetd at the community, and community/civil society stakeholder engagement (FAO, OHW) such as village meetings, Rabies day campaign, communication events, etc.</i>
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10	Kenya	<p>One Health Training Event, 01 - 04 Feb 2018, Mpala</p> <p>PREDICT/Kenya jointly with OHW/OHCEA, FAO, and USAID P&R conducted a One Health training event at Mpala. During the training, participants were taken through a pandemic simulation to learn how to approach an outbreak investigation using PREDICT biosecurity, biosafety protocols. A total of 37 participants drawn from University of Nairobi and Moi University postgraduate students and their faculty mentors, veterinarians at both the national and county (Laikipia) level, Kenya Wildlife Services, Laikipia County health officers and members of the local community. The students observed first-hand a defined high-risk interface, learning about the different drivers and human behavioral risk factors that contribute to the emergence and/or spread of pathogens. In addition, the students learned how to apply the one health concept to mitigate some of the problems the local community were experiencing (frequent diarrhea and flu-like symptoms).</p>
11	Lao PDR	<p>Village meetings in Na Pa Kieb and Soth, 19-20 Feb 2018</p> <p>PREDICT/ Lao PDR expanded the reach of its stakeholder engagement and risk mitigation communications, continuing to hold meetings in Na Pa Kieb and initiating additional village meetings in nearby Soth village. Stakeholders were updated on PREDICT surveillance activities & risk mitigation strategies to reduce risk of zoonotic virus transmission. Subjects included handwashing, avoiding animal body fluids, and cooking meat thoroughly.</p>
12	Liberia	<p>World Rabies Day, 28 Sep 2017</p> <p>PREDICT was instrumental in organizing and implementing a World Rabies Day campaign. The PREDICT team was critical to the success of the event having already been trained in humane animal restraint and vaccinated for rabies. The event was a great collaboration between PREDICT/Liberia, the National Public Health Institute of Liberia, Ministry of Agriculture, Ministry of Health, Food and Agriculture Organization of the U.N. Nearly two hundred dogs were vaccinated at two locations.</p> <p>US Embassy Health Fair, 2 Mar 2018</p> <p>The PREDICT/Liberia along with the organizations previously mentioned conducted a rabies vaccination campaign in the neighborhood surrounding the Embassy at the request of the USAID Mission in Liberia.</p>
13	Malaysia	<p>One Health Student Introduction. 3 Feb 2018.</p> <p>PREDICT/Malaysia conducted a presentation focusing on One Health related issues, careers in One Health, and the introduction of the PREDICT project in Malaysia to undergraduate students during the Borneo Eco Film Festival.</p> <p>Introduction to zoonosis and safe methods to prevent zoonotic infections. 14 Mar 2018. Meeting with village leaders to introduce zoonosis and our human study in Kampung Redip (Pos Hau), Gua Musang District, & Kelantan.</p> <p>Introduction to zoonosis and safe methods to prevent zoonotic infections. 21 Mar 2018</p> <p>Meeting with village leaders to introduce zoonosis and our human study in their community, Pos Sinderut Health Clinic, Kuala Lipis District, Pahang.</p> <p>Introduction to zoonosis and safe methods to prevent zoonotic infections. 29 Mar 2018. Meeting with village leaders to introduce zoonosis and the PREDICT human study in their community, Pos Yum, Kuala Kangsar District, Perak.</p>

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14	Myanmar	<p>One Health Day at Hlawga National Park. Nov 2017.</p> <p>PREDICT/Myanmar team and a local elephant conservation organization coordinated the first-ever One Health day event in Myanmar as part of a greater national and global effort to promote the driving concept behind One Health. Approximately 80 participants joined in two separate sessions, with the general visitors and staff of Hlawga National Park; an 800-acre wild animal park where patrons have an opportunity to interact with wildlife including primates, elephants, and bears. Guests learned about PREDICT activities in the country as well as disease transmission between animals and humans. Methods of prevention and overall awareness were shared through a dynamic lecture that involved large photos, posters, and interactive games.</p>
15	Nepal	<p>Community Health Screening. 13-19 Mar 2018. Jadibuti, Kathmandu, Nepal. As part of PREDICT/Nepal human surveillance activities, the team engaged communities sharing information on the program.</p> <p>Health Camp. 29 Mar–1 Apr 2018. Silinge, Makwanpur, Nepal. As part of PREDICT/Nepal human surveillance activities, the team engaged communities sharing information on the program.</p>
16	Senegal	Community Sensitization: At the community level, sensitization of the populations of the villages of Sindia, Bandia and Kiniabour was carried out by the PREDICT/Senegal One Health team composed of medical doctors, veterinarians and community health workers. The aim of these sessions was to engage the community for increased project commitment in addition to mitigating the risks of zoonotic pathogens through education and sensitization.
17	Sierra Leone	<p>Oct - Dec 2017 (multiple events)</p> <p>PREDICT/Sierra Leone engaged district, chiefdom, and community level stakeholders in the six operational districts (Kambia, Bombali, Kono, Koinadugu, Western Areas). This involved government district officers in the Ministry of Health and Agriculture and local level meetings with key stakeholders to provide updates on surveillance visits.</p>
18	Tanzania	<p>17 community engagement events: 6 in Kibondo, 3 in Uvinza, and 8 in Kyerwa.</p> <p>Attendees include village Executive Officers, village council (chairperson and other leaders), and community members. In Kyerwa, the ward council was included.</p>
19	Thailand	<p>4 EVENT(S)</p> <p>1) Rabies Prevention and Control. 20 Mar 2018. Bangkok</p> <p>Conducted a press conference for medical staff, media and the general public at Chulalongkorn Hospital.</p> <p>2) Rabies Prevention at the Community Level. 17 Dec 2017. Bangkok</p> <p>Provided training at the Girls Scout Training Center in Bangkok, as part of One Health activity organized by the Thai Red Cross Society.</p> <p>3) Rabies Prevention at the Community Level. 7 Nov 2017. Bangkok</p> <p>Provided training for improving medical knowledge of employees in a private company.</p> <p>Emerging Infectious Disease Preparedness, Prevention & Response in Thailand. 31 Jan 2018. PREDICT/Thailand Organized community outreach and health practitioner's participation in a One Health demonstration at Wat Luang sub-district as part of the PMAC Field Trip.</p>
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21	*for the period 10/1/17-9/30/18 ONLY	

	A	B	C	D	E	F	G	H
	Indicator O1							
1		Total # of in-country staff	Total # of in-country staff who are from the host country	Total # of in-country staff who are from the region (but not host country)	Total # of in-country staff who are not local or from the region	Proportion of in-country staff who are from the host country	Proportion of in-country staff who are from the region (but not host country)	Proportion of in-country staff who are not local or regional
2	AFRICA (Regional)							
3	Cameroon							
4	Cote d'Ivoire (EHA)							
5	Côte d'Ivoire (IP)							
6	Côte d'Ivoire (IP/EHA)							
7	DRC							
8	Ethiopia							
9	Ghana							
10	Guinea							
11	Kenya							
12	Liberia							
13	RoC							
14	Rwanda							
15	Senegal							
16	Sierra Leone							
17	Tanzania							
18	Uganda							
19	ASIA (Regional)							
20	Bangladesh							
21	Cambodia							
22	China							
23	India							
24	Indonesia							
25	Lao PDR							
26	Malaysia							
27	Mongolia							
28	Myanmar							
29	Nepal							
30	Thailand							
31	Vietnam							
32	MIDDLE EAST (Regional)							
33	Egypt							
34	Jordan							
35	GLOBAL							
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	<p>*In-country staff: people employed by implementing partner staff to work on EPT-2 projects in EPT-2 countries.</p> <p>*Include only full-time or "most-time" staff (i.e., exclude part-time staff 49% FTE or less, short term consultants)</p> <p>*Regions include: East and Central Africa – DRC, Egypt, Ethiopia, Jordan, Kenya, ROC, Rwanda, Tanzania, Uganda; West Africa – Cameroon, Cote d'Ivoire, Ghana, Guinea, Liberia, Senegal, Sierra Leone; Asia – Bangladesh, Cambodia, China, India, Indonesia, Laos, Malaysia, Mongolia, Myanmar, Nepal, Thailand, Vietnam</p>
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	A	B	C	D	E	F	G	H
37	TOTAL							
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39	*for the period 10/1/17-9/30/18 ONLY							

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	GHSA CATEGORIES	Prevent Avoidable Epidemics				Detect Threats Early						Respond Rapidly and Effective			
2	GHSA Action Packages	AMR*	Zoonotic Diseases	Biosafety and Biosecurity of Dangerous Pathogens	Immunization	Laboratory Systems: modern diagnostics 10 core tests	Labs*	Surveillance for 3 core syndromes	Real-time, interoperable biosurveillance	Reporting	Workforce Development	EOC	Multisectoral Response	Medical and non-Medical countermeasures	USAID Country Total
3	<i>Guinea</i>		6	2		2		2	1	1	3	3	3	0	23
4	<i>Liberia</i>	X	6	2	X	2	X	2	1	1	3	3	3	0	23
5	<i>Sierra Leone</i>		6	2		2		2	1	1	3	3	3	0	23

	A	B
1	New Characterization	
2	In Progress	
3	Complete	